

# MOTOR AGE

A CHILTON PUBLICATION

SEPTEMBER 1961



GIVE YOUR CAR A LIFT



- Future Direction For Chrysler Dealers . . . . 48  
Analyzing A Hole In One . . . . . 64  
Give Your Business A Lift . . . . . 89

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# THE '61 FORD

beautifully built to be more  
service-free...inside and out!



- Bold, imaginative engineering produces many new minimum-service features for the Ford Fine Car Family.

Inside and out, the Ford Family of Fine Cars is designed to require less servicing than ever, with fewer oil changes, less frequent chassis lubrication, self-adjusting brakes and triple life mufflers.

And inside each engine, too, Ford adheres to traditional high standards of quality by specifying Perfect Circle piston rings for original equipment use. Falcon, Comet, Ford, Mercury, Thunderbird and Lincoln Continental engines utilize the performance advantages of PC ring sets, custom engineered to each engine's specific requirements.

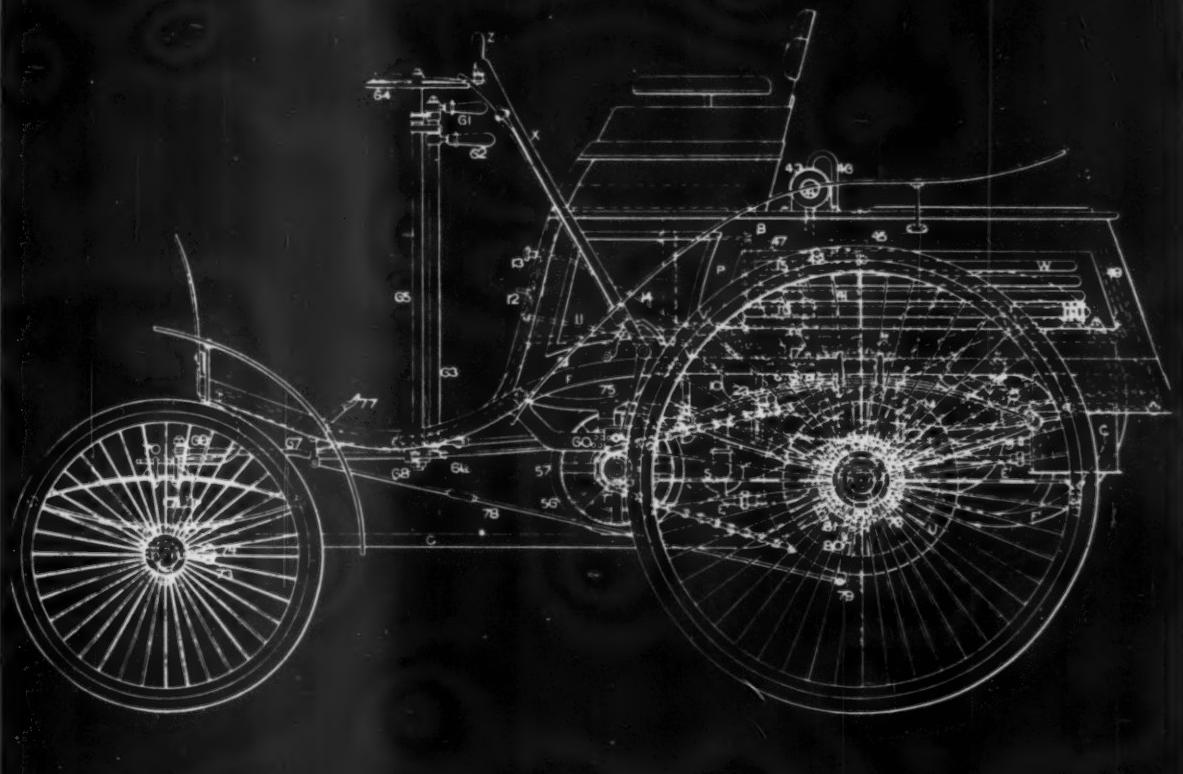


**PERFECT CIRCLE** *The Rings the "Pros" Prefer!*

PISTON RINGS • PRECISION CASTINGS • SPEEDOSTAT • ELECTRONIC PROGRAMMING EQUIPMENT  
Hagerstown, Indiana Don Mills, Ontario, Canada



**one of the very few cars\* you can't tune up with a Hygrade Jiffy Kit**



*"Sorry, no Jiffy Kit available for this 1898 Benz "Ideal" Two-Seat Motor Carriage."*



# **HYGRADE JIFFY KITS**

#### **for carburetor tune up**



*a kit for almost every car*

**"...a better plan from the dealer's standpoint"**

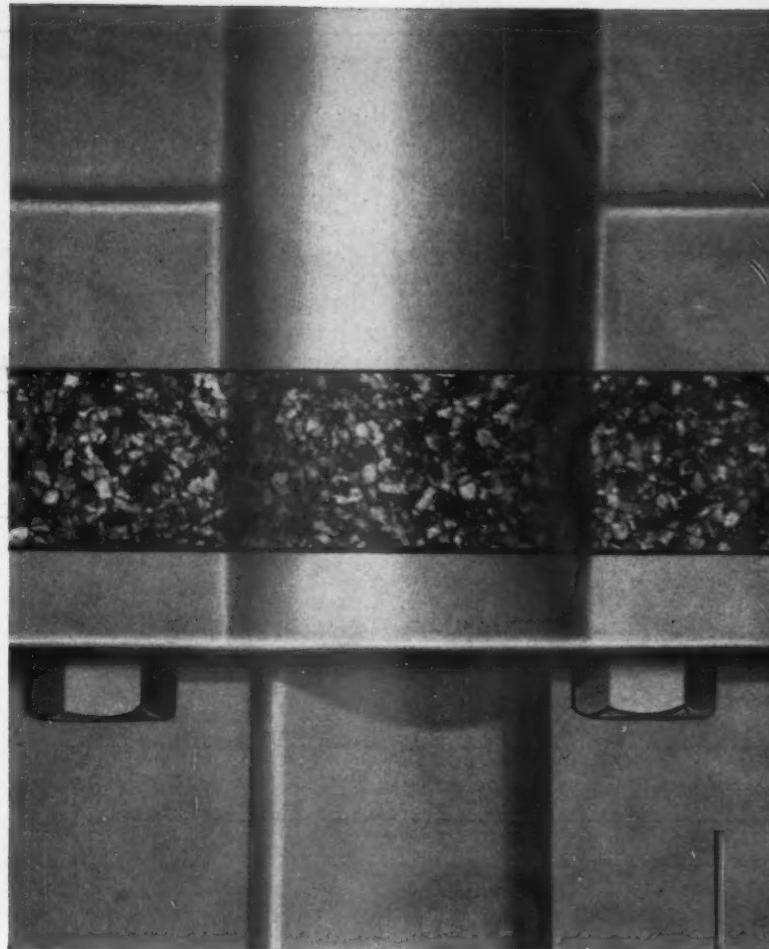
**says J. E. PEAGLER,  
Dodge dealer, Phoenix, Ariz.**

"While previously managing two other car agencies, I decided to switch to the Commercial Credit Plan. So, when I opened my own business, naturally I never considered any other plan. It's a better plan from the dealer's standpoint. Commercial Credit's methods of clearing credit minimize the dealers' potential loss in repossession. And in our highly competitive market, this is especially important. Commercial Credit's nationwide offices are important to the service of our customers, since many of them are wintering here from other states. To really cash in on financing's profit potential, we have one man, who specializes in closing time sales."

***Commercial Credit  
serves successful dealers***

For complete information on how our service can help promote your success, call or write the Commercial Credit Corporation office nearest you.





It's Electronically Cured

# A-V LIVELIER CORK gives you better gaskets

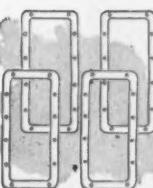
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**GREATER RESILIENCY**—Compression-recovery tests prove A-V gaskets retain the resiliency needed for tighter, longer-lasting sealing.



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Victor Mfg. & Gasket Co., P.O. Box 1333, Chicago 90, Ill. Canadian Plant: St. Thomas, Ont.



Only genuine  
Armstrong-Victor replacement  
cork gaskets have this exclusive  
trade-mark—the two notches. Insist on it.

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The 100% Coverage Line—for Cars, Trucks, Tractors, Stationary Engines

# MOTOR AGE

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Chrysler Corporation's  
E. C. Quinn



Analyzing A Hole in One



Mechanics Training Course



Give Your Business A Lift

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## UPCOMING

The MOTOR AGE full-color preview of the 1962 cars with the latest technical information.  
A "how-to-do-it" article on Generator rebuilding and some answers to the question, "Is Engine Overhaul A Lost Art?"



MOTOR AGE. Published monthly by Chilton Company, Chestnut & 56th Sts., Philadelphia 39, Pa. Subscription price: United States, United States Possessions, \$4.00 for one year, \$7.00 for two years; Canadian, Foreign, \$5.00 per year, \$8.00 for two years; single copies 40 cents. COPYRIGHT 1961 by CHILTON COMPANY

# CAR and TRUCK shop kinks

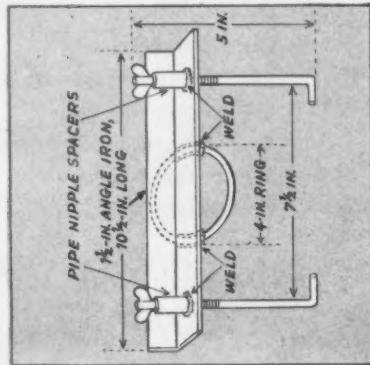
## \$25 for KINK of the month \$10 paid for other KINKS

### Removing Spring Loaded Reverse Piston Retaining Spring

Carl A. Stamler, R.F.D. 4, Freeport, Ill.

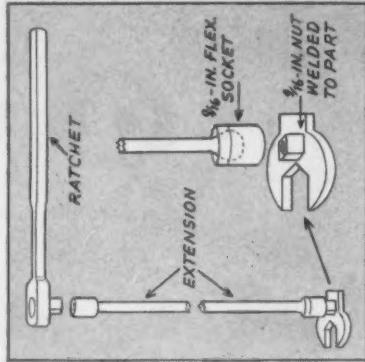
### Kink Of The Month

**117.** We repair a lot of hydraulic transmissions and always had trouble removing the spring loaded reverse piston retaining ring on the '52-'55 models. We made the tool illustrated from scraps laying around most any shop. It really does a wonderful job in overcoming this problem.



### Tool For Removing Buick Starters

R. L. Farmer, 13-15th St., South, Great Falls, Mont.



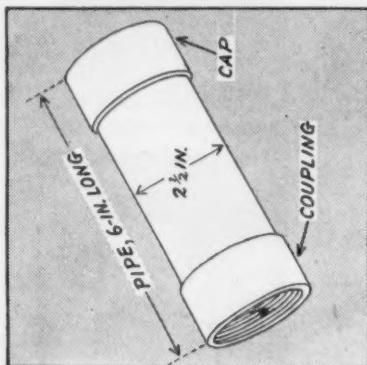
**118.** It is a rough job to remove the two bolts holding the starter. We devised a tool which works very well. We cut the 5/8 in. portion off an open end wrench and welded a 1/16 in. nut on to it. Now your regular tools can be used.

### Tool For Replacing Front Pump Seal On Powerglide Chevys

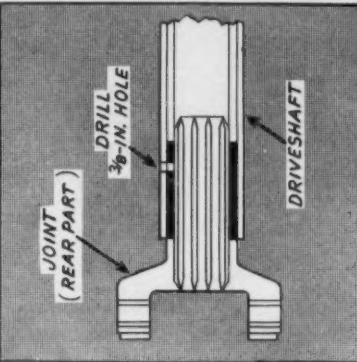
Harry Mooradian, 76-88 Main St., Haverhill, Mass.

### Torque Tube Bushing Removing Made Easy

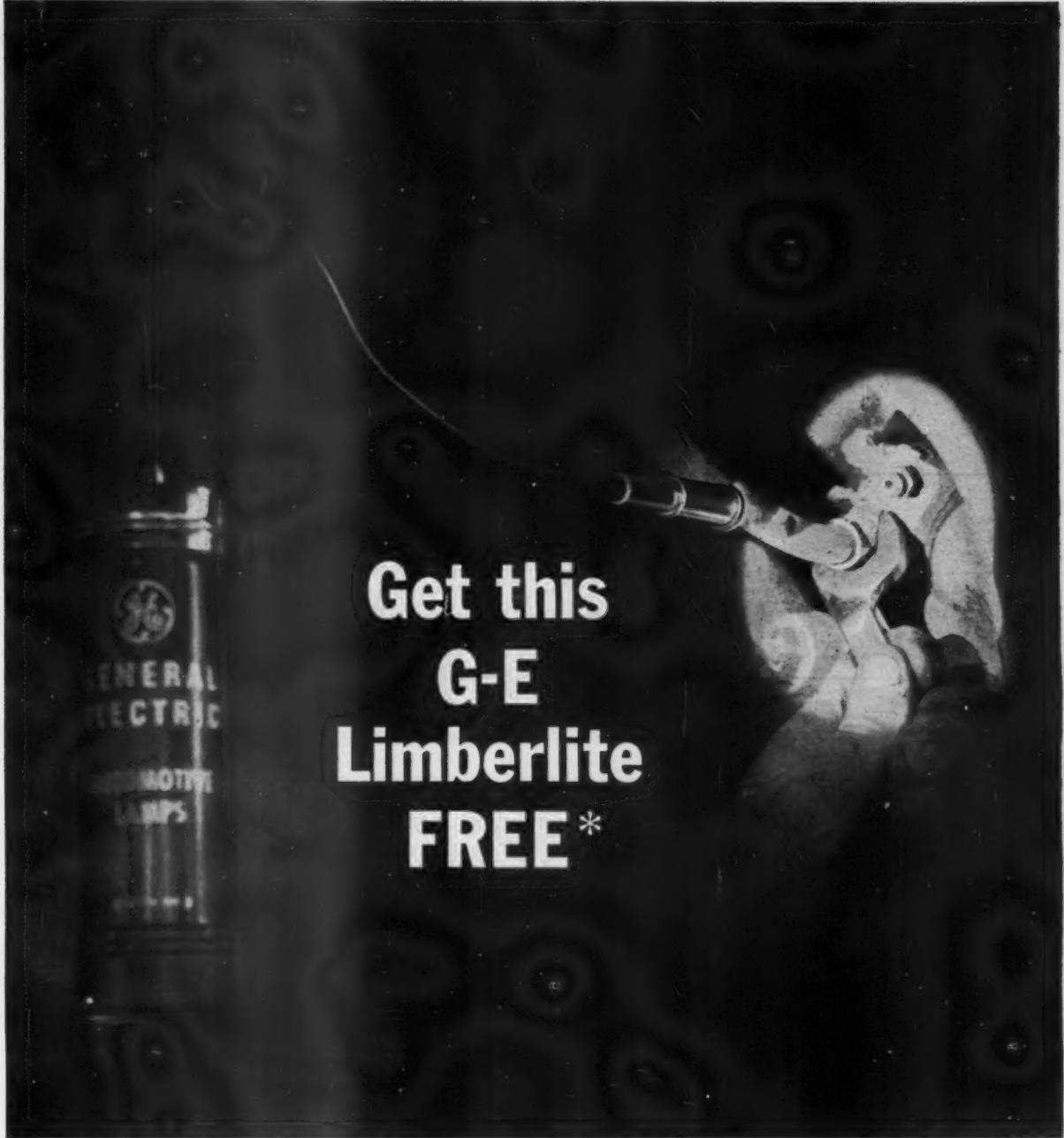
Ben Pena, 102 Carolina St., San Antonio, Tex.



**119.** As a transmission man, I have discovered a time and money saving tool. It is a tool for replacing front pump seals on powerglide '55-'61 Chevrolets without removing the pump from the housing. A diagram of the tool is shown at right.



**120.** On Chevy torque tube drives we remove the front joint bushing where the U joint rides with an old U joint (rear part). Drill and set up as shown in illustration. Align both holes and drop a dowel made from the same size bolt in the hole and cut it short enough to sink beyond the drive shaft housing. Use a hammer on outer part of U joint to make it come off.



# Get this G-E Limberlite **FREE\***

**LIGHTS UP PLACES YOU COULDN'T LIGHT BEFORE.** It hangs onto braces and cables—leaves both hands free to work on flex hoses, filter bowls, exhaust dampers . . . to check wiring, timing marks, fuses . . . to look into carburetors, door panels, radiators.

The G-E Limberlite is built to last. It has an insulated G-E thermoplastic 16 gauge, 10" cable. It won't short and is acid, grease and oil resistant. Its sturdy steel case holds two D cells. And you can't buy one anywhere.

\*The G-E Limberlite is really free! You get it free when you order the special carton of G-E head-



lamps—fifteen 4002's and seven 4001's. It's packed (without batteries) right in the carton. You don't pay extra for the lamps and you pay nothing for the Limberlite. Ask your G-E lamp supplier for the Limberlite deal. Call him today because this offer is good only as long as the supply lasts. General Electric Co., Miniature Lamp Dept. M-137, Nela Park, Cleveland 12, Ohio.

*Progress Is Our Most Important Product*

**GENERAL**  **ELECTRIC**

# Grey-Rock

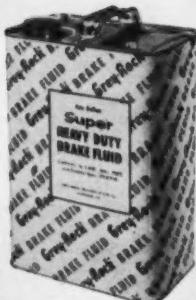
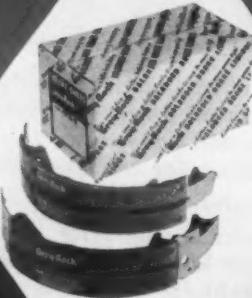
now means  
everything

in brake system  
service

BRAKE LINING

BRAKE PARTS

BRAKE FLUID



# Why you should sell the full Grey-Rock line



standard of quality for the entire line, backed by Grey-Rock's solid research and reputation.

convenient source for all your brake service needs.

coordinated training program, expanded to cover complete brake system service.

concentrated advertising, merchandising and selling program now bigger and more powerful than ever.

## NEW FROM GREY-ROCK



Master and wheel cylinder assemblies, repair kits and system components

Brake cable and hose

Brake fluid

Service equipment—system bleeders, cylinder hones, wheel cylinder clamps



## Mr. Dealer . . .

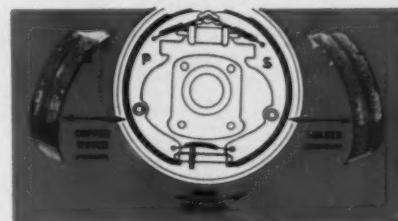
Grey-Rock's new full-line policy is a sound business opportunity for you. The combination of brake linings, parts and fluid is the largest volume line in the replacement parts business. Your customers respect the Grey-Rock name. They're pre-sold on the quality of Grey-Rock products. By controlling the quality of every brake job with this new full line from Grey-Rock, you can win many new satisfied customers. Here's what Grey-Rock now offers you: Exclusive

Balanced Braksets with Copper-Woven Linings, highest quality fluid, improved cylinder cups, better brake hose and cables, and practical service equipment. Grey-Rock backs you with powerful merchandising and advertising, the famous P-L-S® plan to help you sell, and the finest brake clinic and service manual in the field. In short, Grey-Rock now offers you a real opportunity to increase your brake service business and profits. See your Grey-Rock jobber now. Grey-Rock Division, Raybestos-Manhattan, Inc., Manheim, Pa.



### Exclusive Copper-Woven Brake Lining

An engineering break-through! Copper wire woven into the lining conducts some of the heat away from the braking surface into the shoe, where it is dissipated. Brakes cool faster . . . fade is practically eliminated . . . linings wear longer. These are exclusive features you can SEE, SHOW and SELL!



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In Bendix brakes, the primary (clutch) shoe actuates the secondary. In many of these sets Grey-Rock uses high friction, heat dissipating Copper-Woven Lining on the primary in combination with dry-process molded lining on the secondary shoe. This specially engineered combination provides balanced brake action for fast, smooth stops and long, even wear.

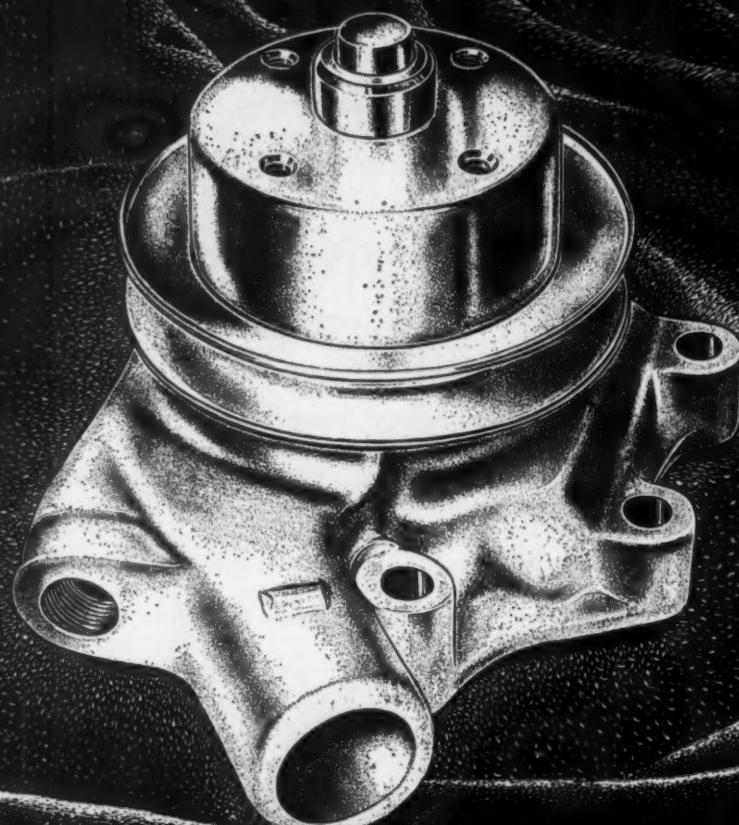
Only **Grey-Rock®** makes BALANCED BRAKE LININGS

BRAKSETS • TRUCKSETS • BLOCKS • BRAKE PARTS & FLUID • VEE-LOK® FACINGS • AUTOMATIC TRANSMISSION PARTS

*You Can't Buy a Better Brake Lining to Save Your Life*

*customer's*

*Presenting...*

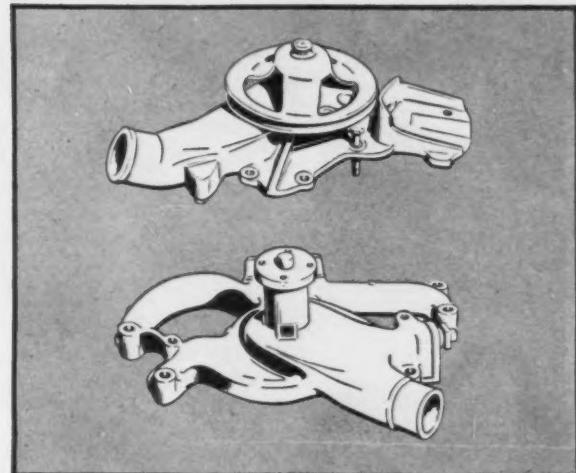


# *A Complete Line of* **WATER PUMPS**

**The finest ever developed for...  
LONG, TROUBLE-FREE SERVICE**

#### **Precision-Engineered—Performance-Tested**

You can install a Permite Water Pump with complete assurance of satisfaction—every time! Each water pump is specifically designed for the particular car, truck, bus or tractor application for which it is used. Recommend Permite to your customers as the *quality pumps preferred* by service experts in the trade. Like all other parts in the complete line, Permite Water Pumps are built to the highest engineering standards, mechanically tested and 100% vacuum tested to assure superior performance throughout a long, trouble-free life.



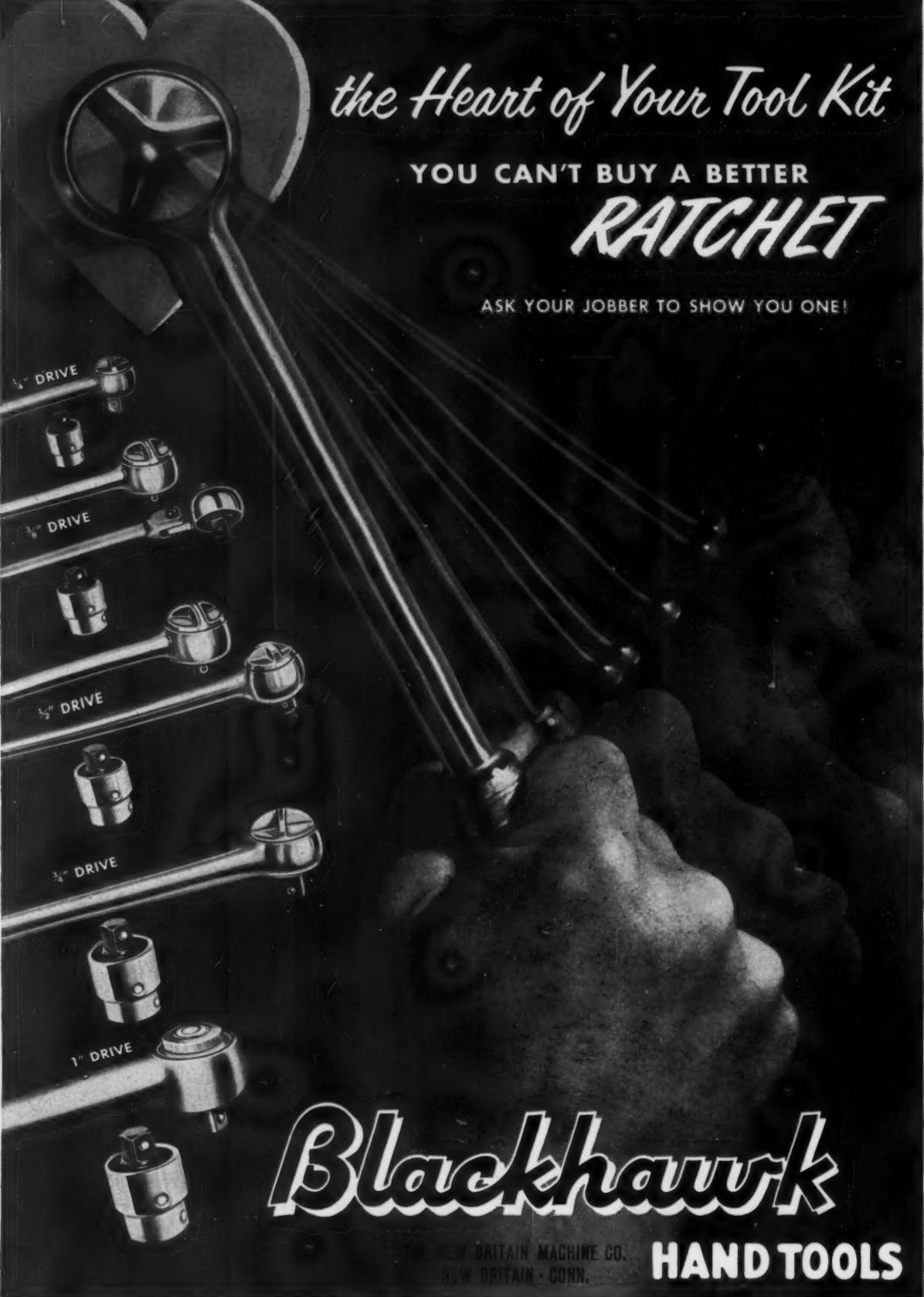
*Permite Water Pumps—A Part of Today's  
Bigger and Better Line of Permite Preferred  
Parts. For the complete line, call your jobber.*

**ALUMINUM INDUSTRIES, INC.**, Cincinnati 11, Ohio  
*In Canada—BWH SERVICE PARTS LIMITED, Merriton, Ontario*  
*Warehouses In—Toronto • Montreal • Vancouver • Edmonton*



## **Permite *preferred***

*by vehicle manufacturers / car and truck dealers / garage and service men / fleet operators*



*the Heart of Your Tool Kit*

YOU CAN'T BUY A BETTER

**RATCHET**

ASK YOUR JOBBER TO SHOW YOU ONE!

**Blackhawk**

THE NEW BRITAIN MACHINE CO.  
NEW BRITAIN, CONN.

**HAND TOOLS**

# WHO BUT CHAMPION

PARTS REBUILDERS

have 34  
individual quality  
control check-points



to assure "tailored performance"  
for every remanufactured carburetor!

Throughout the entire rebuilding process, every step is carefully checked to assure absolute maximum care and precise workmanship. Champion's rebuilding program is based upon a consistent 100% Uniform Quality Control Policy. Our minimum "New Parts Added" requirement applies to every unit, enabling us to bring back the original life and performance into the FULL LINE of these popular carburetors:

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- HOLLEY
- FORD
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All Passenger Cars and Popular Trucks



Complete  
"Flow-Bench"  
Pre-Testing and  
Pre-Adjusting...  
assures maximum  
operating effi-  
ciency, eliminates  
time-consuming  
adjustments. You  
install it—and  
forget it!



"One-Stop"  
Coverage . . .  
the industry's  
most complete  
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ice. Tremendous  
stocks always on  
hand save you  
time, money.

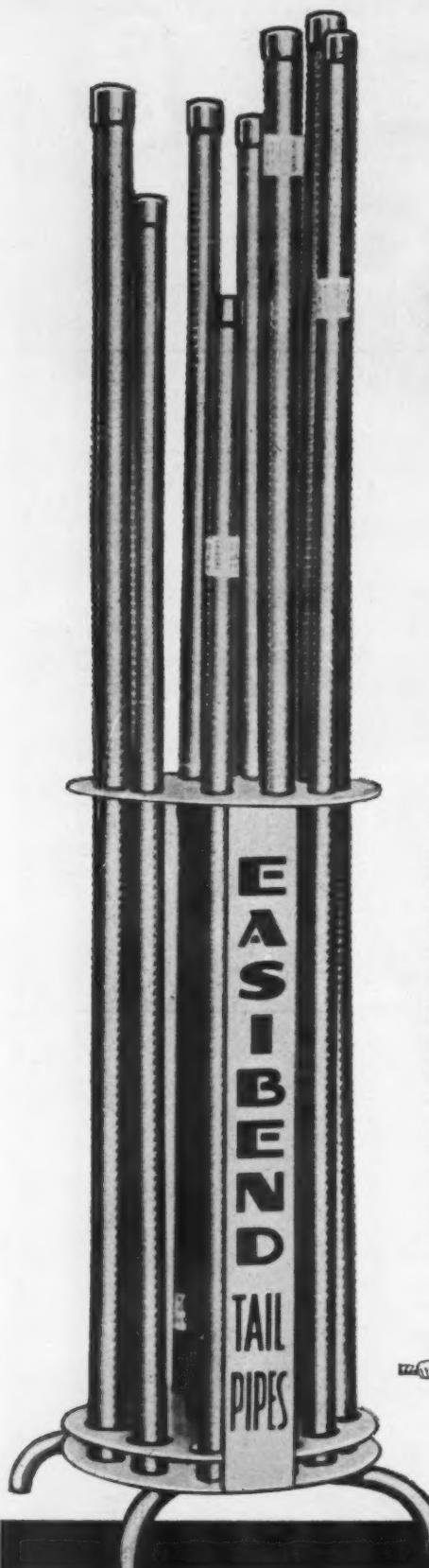


#### EXCLUSIVE JOBBER SERVICE:

Carburetor and  
Water Pump  
Identification  
Guides . . . help  
you cut loss of  
profits due to  
errors in exchange  
identification. An  
exclusive  
Champion  
customer service.



Write for name of nearest Champion distributor



# 11 EASIBEND TAIL PIPE SIZES FIT 85% OF YOUR JOBS

Any dealer with this 11-piece Easibend assortment can complete a tail pipe installation on 85% of his customer's cars. With ready-bent pipe, he has less than a 5% chance of having the right pipe for the job. This 11-piece Easibend assortment is self-standing, self-displaying, self-selling. It occupies only a few square feet of floor space and replaces more than 600 ready-bent tail pipes. The "Easibend 11" fits new cars, old cars, foreign cars and customs and installs faster than ready-bent.

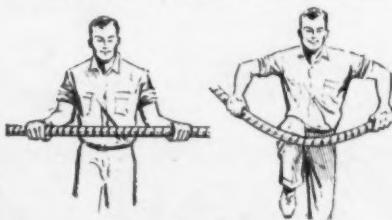
**Sturdy One-Piece Spiral Construction** of hot-dipped galvanized steel for longer life. Easibend has been tested up to 700 P.S.I.

**Easy to Bend** without tools to match any shape needed. Easily straightened and rebent. Holds bends rigidly and permanently. Can be reshaped right on car if bends are incorrect or if pipe touches frame or body.

**Can't Leak** because it's asbestos packed, leakproof to deadly carbon monoxide gas.

**Long Life**—Convolutions in construction give 3 times the metal surface for faster heat radiation and faster condensation evaporation reducing "rust-outs" and wear and lengthening life.

**Dressy, Permanent, Vibration Proof**—No sagging bends or wobbly "runs." Actually requires fewer bends and brackets than ready-bent pipe. Complete with nickel chrome ferrule on the bumper end. The only tail pipe on the market where the customer does not need a tail pipe extension.



**EASY-TO-INSTALL**—No tools required. Bends fast and easy. Installs in 15 minutes—actually quicker than ready-bent. Dealers report best results by "rough bending" to configurations of old pipe and "finish" bending as needed during installation. May be bent—straightened—rebent as needed.

ORDER YOUR "EASIBEND 11" NOW FROM YOUR JOBBER  
or write

THE INTERNATIONAL METAL HOSE CO.  
BELLEVUE, OHIO



MODERN EXTERIOR of  
the Broad-Locust Garage.



THIS NATIONAL SYSTEM pays for itself in less than two years.

"Our *National*\* Change Computing Register  
with Automatic Coin Dispenser

# returns its cost every 18 months!"

— Broad-Locust Garage Corporation, Philadelphia, Pa.

"Our new mechanical Pigeon Hole Garage was designed with one thought in mind—to give our customers the finest and fastest parking service. Our cash system also had to combine speed with accuracy and control.

"From a management standpoint, we like the accuracy of machine addition, mechanically computed change and automatic change dispensing. With the National the customer gets correct change and, above all, we know that before any change is dispensed the parking charge must be recorded properly. The daily printed statement gives us a complete record of activity in several categories.

"We handle parking for hotels, theaters, shoppers, office workers and other mid-town activities. This means we have

concentrated exit activity and must handle large groups of customers within a short time. Our National takes care of these peak loads with smooth dispatch. Along with quick service, our customers like the itemized receipt that shows all charges, amount of money tendered the cashier, and correct change they received.

"The savings from our National Change Computing Register with Automatic Coin Dispenser pay for the installation every 18 months! We feel the National is a wonderful investment!"

*Brenton J. Wallenfang Jr.*

Secretary  
Broad-Locust Garage Corporation

Your business, too, can benefit from the many time- and money-saving features of a National System. Nationals pay for themselves quickly through savings, then continue to return you an extra reg'lar yearly profit. National's world-wide service organization will protect this profit. Ask us about the National Maintenance Plan. (See the yellow pages of your phone book.)



\*TRADE MARK REG. U. S. PAT. OFF.

# National\*

CASH REGISTERS

ADDING MACHINES • ACCOUNTING MACHINES  
ELECTRONIC DATA PROCESSING  
NCR PAPER (NO CARBON REQUIRED)

THE NATIONAL CASH REGISTER COMPANY, DAYTON 9, OHIO  
1039 OFFICES IN 121 COUNTRIES • 77 YEARS OF HELPING BUSINESS SAVE MONEY

# This is- *wix*•O•MATIC



## For Those Who Sell Filters... and Want to Sell MORE!



WIX Oil and Air Filters are built to give the car owner extra value and greater engine protection...WIX-O-MATIC, the soundest merchandising system in the filter industry, gives you more sales and bigger profits. This statement is proved by thousands of dealers who know from first-hand experience how WIX-O-MATIC stimulates sales and stops losses.

With WIX-O-MATIC you never lose sales by "being out of" the filter you need...you never lose money because of excess inventory or obso-

lete numbers. And—sales are made quicker! With the Dial-O-Matic Selector you can tell at a glance what filter is needed for any American-made car or light truck that drives in—most foreign cars, too. WIX-O-MATIC is available with wall racks for small stocks and floor cabinets for more active locations, and you get both FREE.

Get all the facts on WIX Oil and Air Filters and WIX-O-MATIC merchandising from your jobber, or write direct. Do it today.

**WIX CORPORATION • GASTONIA, N. C.**

In Canada: Wix Corporation Ltd., Toronto  
In New Zealand: Wix Corp. New Zealand Ltd., Auckland



# **NEWS**

## *Action Team*

*Ford Motor Company*, and Autolite—the new Action Team. Backed by the research, the production facilities, and the merchandising know-how of the Ford Motor Company. Spark plugs, batteries, ignition parts—a complete, an aggressive line of products that will be sold through independent distributors. Autolite means business. You'll find the proof on the next seven pages.



**AUTOLITE**

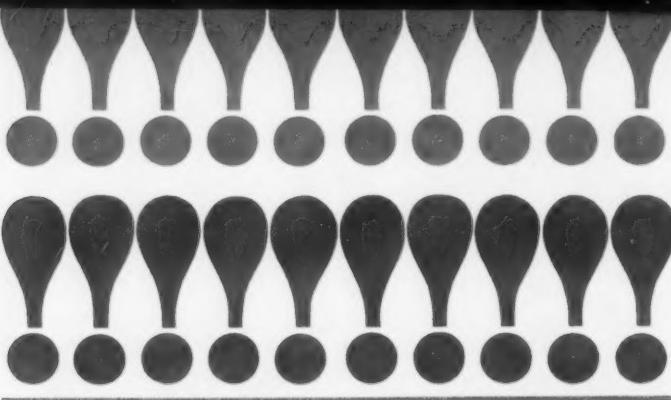




Autolite spark plugs are now standard equipment on every Ford, Falcon, Mercury, Comet, Thunderbird, and Lincoln Continental. You've got 32% of the replacement market going in. And 32% is just the beginning. This is the spark plug that cleans itself while you drive. Proved in competition: used last year by more NASCAR drivers

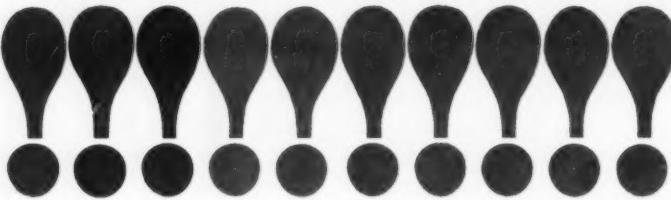
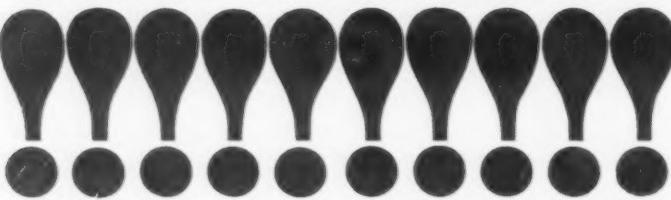
**AUTOLITE**  **SPARK PLUGS**

than all other spark plugs put together.



# **NEWS**

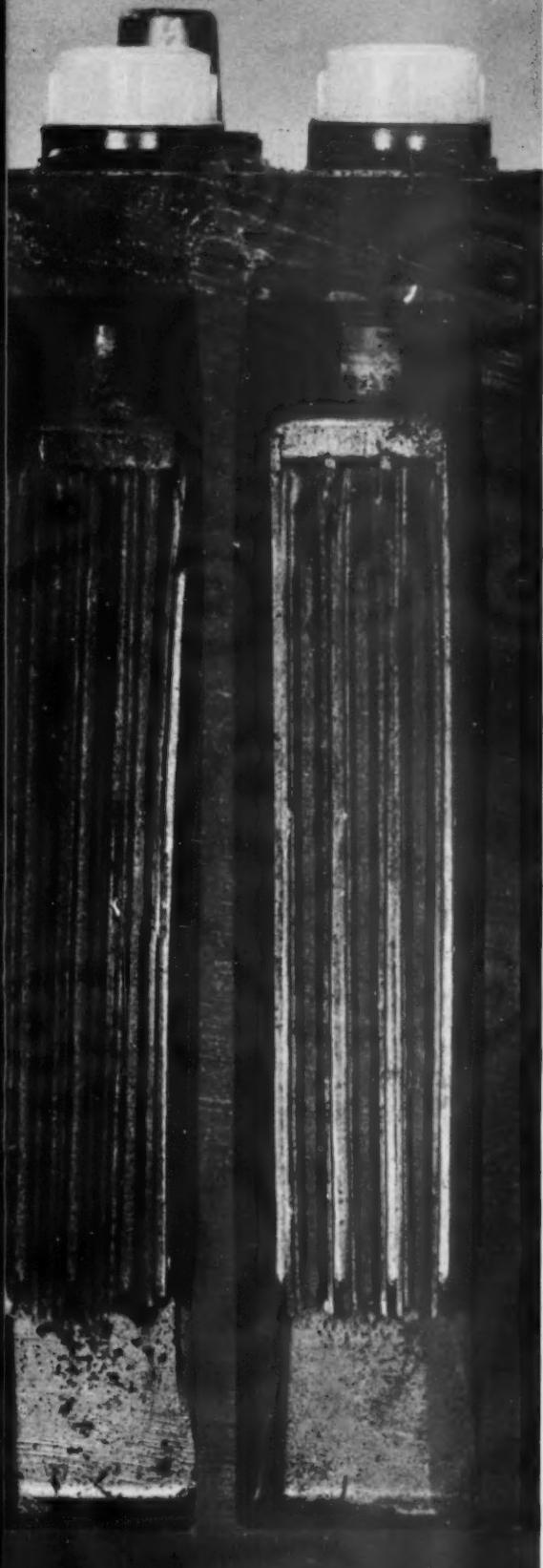
## *Sales Exclusives*



Only Autolite sells the sta-ful battery—the battery with up to 3 times the liquid reserve, up to 3 times the protection against battery dry-out. Only Autolite sells the Power Bond—the vibration-proof battery that's loaded with exclusive features for your customers, loaded with profit for you. Autolite offers you batteries in every price range, each with exclusive sales features.

**AUTOLITE**  **BATTERIES**

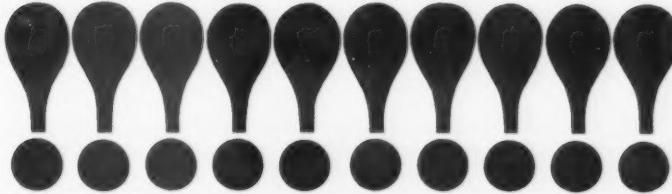
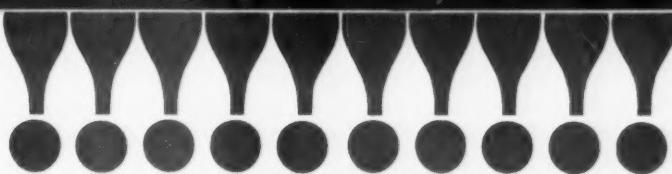
**ORDINARY BATTERY**



**AUTOLITE STA-FUL BATTERY**

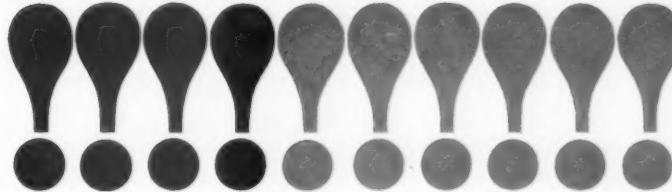
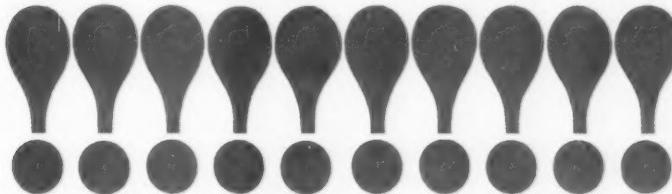






# NEWS

## *Expanded Parts Line*



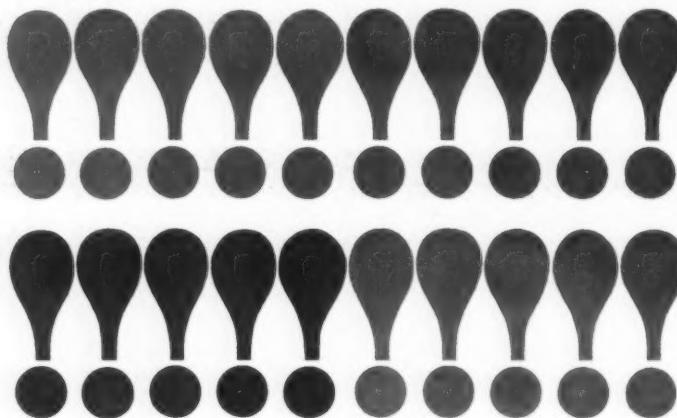
Now, from Autolite, for all Autolite dealers. A complete line of ignition parts for all Ford Motor Company and Chrysler Corporation cars. Plus electrical parts for over 200 makes of marine, farm, and industrial engines. Plus carburetors, carburetor repair kits, gasket kits, and tune-up kits for all Ford Motor Company vehicles. These

**AUTOLITE**  **PARTS LINE**

parts are only the beginning. Grow with Autolite.



## *Aggressive Promotion*



Every week you'll see Autolite in action on the "Straightaway"—Autolite's new ABC network television show. You'll see Autolite in action with participating TV sponsorship of American Football League games. Magazines? You bet. Starting with a full-page, full-color ad in the September 8th issue of Life Magazine. Followed by another four-color Life ad in October. And another one-pager in November. Every month this fall you'll see Autolite ads in no less than 14 national magazines. And we're locking in final details on a national consumer promotion that's already been completely and successfully tested in the field. Watch for full details on this program next month.

 **AUTOLITE**



*Wheel Alignment of the Future - here Today!*

# John BEAN LIFT-A-MATIC

*no other aligner can match these features!*

**LOW SPACE REQUIREMENT:** Rack is only 15½ feet from tip to tail, yet puts full-scale wheel alignment service in a single service bay. Eliminates runway approaches, keeps driveways clear, handles the largest standard American passenger car. Handles up to 6000 lbs. weight at 150 lbs. air pressure.

**REMOTE CONTROL AIR LIFT:** Push-button automation: Just drive the car on the rack, reach out and push the button and air cylinders lift car into aligning position. Fast, positive, safe.

**VARIABLE-TREAD RUNWAYS:** Variable 40 to 68 inches on giant, non-binding rollers. Handles conventionals, wide-tracks, compacts, sports, imports . . . you'll never turn a car away!

**MECHANIC'S DREAM:** Roller-bearing mounted runways glide at fingertip touch. Clear-center construction is 41½" wide, runway height just 20"—perfect for working from creeper.

**EXCLUSIVE "SHAKE-OUT":** No need to turn swing-axle cars around to align rear wheels. A couple of "bounces" on the easy-moving runways, and wheels assume normal road position for fast, accurate aligning.

**NO PIT PROBLEMS:** Lift-A-Matic installs anywhere (even on the second floor). No need for expensive pits. Can even be relocated if necessary.

**AUTOMATIC SAFETY:** Safety leg supports runway if air supply should fail. Safety runway guards automatically hold until released by push-button.

**AS YOU LIKE IT:** Lift-A-Matic is available with Visualiner optical heads, mechanical or magnetic gauges, as a rack only or as a modernizer or conversion kit to up-date your present equipment.



**PUSH BUTTON  
AIR LIFT CONTROL**  
Operator drives on Lift-A-Matic Rack, presses button while still in driver's seat. Air lift puts car in aligning position automatically!

**FREE CATALOG:**  
You've never seen anything like Lift-A-Matic, because there is nothing like it! Remedy that situation by calling your John Bean jobber or writing us for a free catalog.

*John*  
**BEAN**®

DIVISION OF  
FOOD MACHINERY AND CHEMICAL CORPORATION  
LANSING, MICHIGAN

**fmc**  
®

# Now... Cash in on 3 years' experience that has perfected Ditzler's Acrylic Color Mixing Service!



- **DITZLER SHELF-SHOP MIX.** For the shop with limited shelf space. This compact unit comes in two sections. Requires only 16 sq. ft. of floor space, and wall space just 8 ft. wide and 7 ft. high. Can be used in straight line or in corner.

**R**efinishing shops all over the country have used DITZLER'S Acrylic Color Mixing Service with unvarying success for three years. DITZLER research chemists and technicians have combined the results of this practical experience with tireless laboratory tests and studies to refine and perfect pigments, chemical content and formulations so that this system today is farther ahead than ever of all others.

• With this time- and cost-saving mixing service you can now match more precisely and quickly the rich beauty, luster and rugged durability of the acrylic finishes on many of today's cars. And you do it with true acrylic colors—not just modified lacquers.

DITZLER COLOR DIVISION, Pittsburgh Plate Glass Company, Detroit 4, Michigan ... Torrance, Calif.

• No waiting for delivery of needed colors. With the complete range of base colors and laboratory-tested formulas you serve customers more quickly, efficiently and economically. And you need only to mix the exact amount for a spot repair or complete repair job. No waste. No costly inventory of half-used or slow-moving colors.

• Now . . . cash in on the 3 years' experience which has given DITZLER'S Acrylic Color Mixing Service even a more decisive leadership in this field.

• Whether your shop is large or small, you'll find this one of your more profitable investments. Call or see your nearest DITZLER jobber for details.



• DURACRYL® acrylic finishes, exclusive products of Pittsburgh Plate Glass Company and its DITZLER and FORBES divisions, are used on the production lines of all car manufacturers applying acrylic finishes as original equipment.



**DITZLER®**  
PAINTS • GLASS • CHEMICALS • BRUSHES • PLASTICS • FIBER GLASS

PITTSBURGH PLATE GLASS COMPANY

IN CANADA: CANADIAN PITTSBURGH INDUSTRIES LIMITED



All-new water pumps  
with the exclusive McQuay-Norris

## POSITIVE-STOP ASSEMBLY

# McQUAY- NORRIS

## WATER PUMPS...

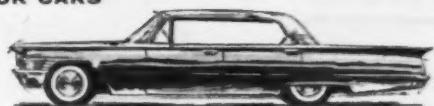
Install only McQuay-Norris water pumps,  
assembled by "POSITIVE-STOP" Machines  
that automatically position each part exactly  
so that perfect performance is assured.

McQuay-Norris all-new Water Pumps—  
lubricated for life—are designed and  
manufactured with engineered precision for  
long life and efficient, leakproof operation.

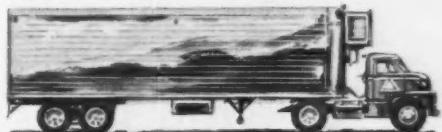
**Customer satisfaction and good will?**  
**You bet! Profits? Most certainly!**

- Easy to Install
- Water Tight Seal
- Long Wear Life
- High Profit Margin

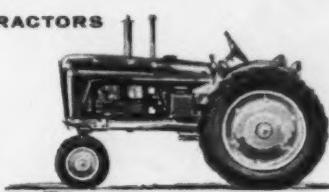
### FOR CARS



### FOR TRUCKS



### FOR TRACTORS

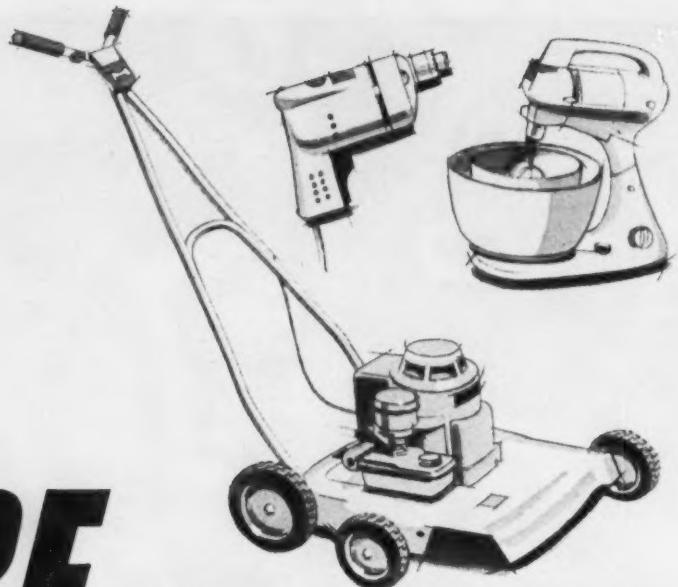


**SEE YOUR MCQUAY-NORRIS WHOLE-  
SALE FOR FULL DETAILS ABOUT:**

- Special Bonus Plan
- Deferred Payment Plan

McQUAY-NORRIS MANUFACTURING CO., ST. LOUIS, MISSOURI

# **GIFTS GALORE IN THE DUPONT SELL DuPont M.O.A. (MOTOR OIL ADDITIVE)**



Every car owner is a prime sales prospect for M.O.A. whenever he's due for an oil change. Here are some tips to help you clinch sales.

Point out that a can of M.O.A. added to the crankcase with every oil change retards sludging and engine wear . . . reduces oil consumption . . . promotes a smoother, quieter-running engine. Or you can actually prove M.O.A.'s importance in an engine by showing a sludge-clogged oil screen and explaining how M.O.A. helps keep oil screens free from sludge allowing the free passage of oil to vital engine parts.

Tell all your customers how vital M.O.A. is to their car's performance. You'll sell more M.O.A., earn more profits.

## **48,000 MILE ROAD TEST RESULTS**





## M.O.A. GIFT PROMOTION!

**GET** your choice of over 500 gifts

Television sets, rifles, electric mixers, power mowers—hundreds of other fabulous gifts can be yours when you sell Du Pont M.O.A. And it's all so easy.

Each carton of M.O.A. comes packed with 12 valuable coupons redeemable by Du Pont No. "7" dealers. You just sell the M.O.A. (it practically sells itself), save the coupons and turn them in for any one of the gifts shown in the illustrated forty-page Du Pont M.O.A. Gift Catalog. Naturally, the more M.O.A. you sell, the greater the opportunity to obtain more valuable gifts.

Start piling up the coupons today. Contact your DuPont supplier and order several cases of M.O.A. now!

*Void in any state or municipality where the redeeming of such coupons is prohibited, taxed or otherwise restricted.*

**Write for your free,  
beautifully illustrated 40-page  
gift catalog today!**

**E. I. DU PONT DE NEMOURS & CO. (INC.)  
GIFT DEPARTMENT  
195 NORTH STREET  
TETERBORO, NEW JERSEY**  
BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY



# DUPONT № "7" PRODUCTS

# TWO WAYS TO IMPROVE

1

When brake lining needs  
to be replaced—always use

## **Wagner® Lockheed® LINED BRAKE SHOES**

Easy to install—mechanic can  
turn out quicker, safer brake jobs



A sure, easy, profitable way to improve your brake service is to use Wagner Lockheed Lined Brake Shoes.

These top-quality shoes come to you with the lining contour ground to compensate for normal drum distortion.

With correct clearance provided towards the ends of the shoe, lining contacts the drum over the entire lining surface. You'll have fewer "comebacks" for adjustments . . . and you'll have more satisfied customers who will continue to patronize you for other service needs.

"How-To-Do-It" Installation Instructions, packed with each set, make it a simple matter for a mechanic to quickly turn out a troublefree brake job at an economical price.

**Wagner Lockheed Lined Brake Shoe Sets** are available with standard or oversize lining thicknesses for all passenger cars and popular light trucks.

**Near You**—there's a supplier of Wagner Products. Look to him for Wagner Lockheed Lined Brake Shoe Sets, Brake Lining, Brake Parts, Power Brake Repair Kits, and Brake Fluid . . . one call gets all!

You're always right with the Quality line

## **Wagner® Lockheed®**

*the best known—and most trusted name in brake service products*

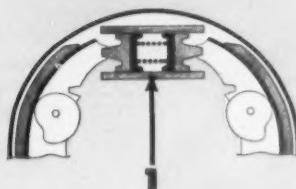
LOCKHEED BRAKE PARTS, FLUID, BRAKE LINING AND LINED BRAKE SHOES • AIR HUMPS • AIR BRAKES • TACHOGRAPH

# YOUR BRAKE SERVICE...

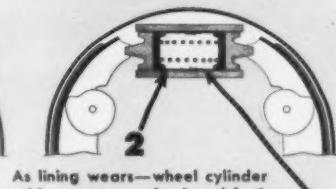
2

When installing replacement shoes  
—for a first class job—  
always check the wheel cylinders

## TO PREVENT LEAKS—REPAIR OR REPLACE WHEEL CYLINDERS WHEN RELINING



With new lining and new wheel cylinder all seals are tight and brakes will function properly.

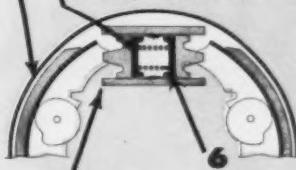


As lining wears—wheel cylinder rubber cups move back and forth over a new, widened smooth area.

Corrosion and foreign matter builds up on part of the cylinder walls where cups do not work.

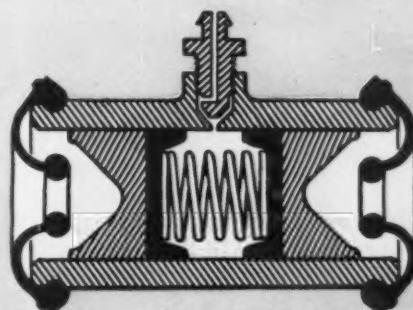
4 When new, thick lining is installed ...

5 Cups are pushed closer together and must do their work over the roughened surface.



New rubber boots should be used to keep the dirt out.

6 Since cups can no longer seal against smooth cylinder walls they allow fluid to leak out.



For best results use Wagner Lockheed cylinder repair kits, furnishing superior rubber parts made of the new HTR (High Temperature Resistant) compounds.

## FREE!

Ask for a copy of Catalog AU-500. It covers the complete Wagner Lockheed line of brake service products. Also, get details on how easily you can qualify to become a Wagner Lockheed Franchised Dealer, with special advantages.



**Wagner Electric Corporation**  
6498 PLYMOUTH AVENUE, ST. LOUIS 33, MO., U.S.A.

- Send your complete-line Catalog AU-500.  
 Send Franchised Dealer Bulletin AU-607.

Name \_\_\_\_\_

Firm \_\_\_\_\_

Address \_\_\_\_\_

City & State \_\_\_\_\_

W861-2

ELECTRIC MOTORS • TRANSFORMERS • INDUSTRIAL BRAKES





*you get  
your  
Chevy parts*

# PDQ!

*at your Chevrolet  
dealer's!*

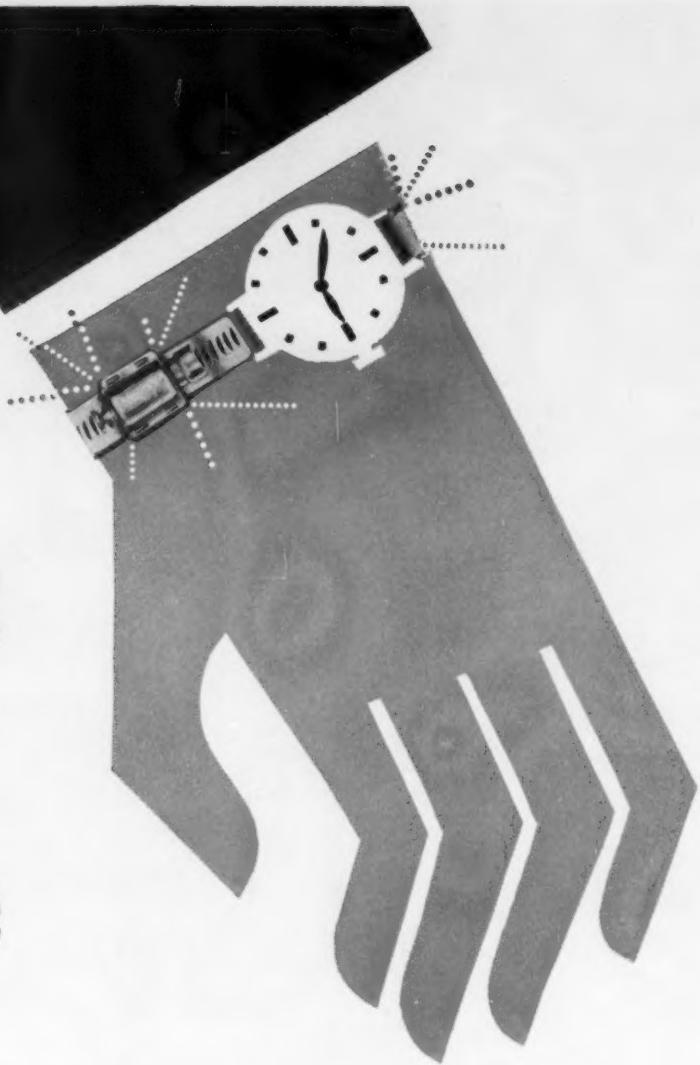
In today's competitive auto repair business, there's no substitute for giving your customers quick, reliable service. That's where your Chevrolet dealer comes in to help you. By backing you with a ready source for new and older model Chevy parts, he can help you meet tight schedules and thus build customer satisfaction and profitable repeat business. Just as important, when you get *genuine* Chevrolet parts from your Chevrolet dealer, both you and your customers know you're using top-quality parts with the same long-run reliability as the original factory-installed assemblies. And, because they're made especially for Chevies, genuine Chevrolet parts fit right (for easy, fast installation), and perform right (for *lasting* customer satisfaction). Give your Chevrolet dealer's parts manager a call today. His PDQ

(Parts Delivered Quick) service is all the convincing you'll need. . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

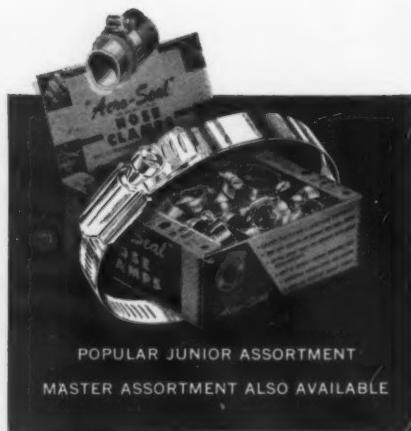
*There's no business like Chevrolet business...  
make your Chevy dealer your partner in service!*



# Best any time



## AERO-SEAL JET® worm drive hose clamps



Whenever you're dealing with hose clamps (using them or selling them) you will find more plus features in AERO-SEAL than you can get anywhere else. The patented JET mechanism permits almost instantaneous installation but will never shake loose. The patented band slots are shaped and angled to prevent binding. The patented interlock of saddle and band eliminates spot welding. AERO-SEAL bands and saddles are 302-18-8 stainless steel, and all stainless is also available. You'll find no burrs or sharp edges because AERO-SEALS are finished to aviation standards.

AERO-SEALS come in diameters from 7/16" to 15 feet to solve a multitude of fastening problems. Don't accept less. AERO-SEALS are best any time.

**BREEZE CORPORATIONS, INC.**



700 Liberty Avenue, Union, New Jersey  
Cable Address: Breeze, Union, N. J.





## B&D Sander-Grinders 60% faster, get your equipment rolling faster!

Try a B&D 7" H. D. Sander-Grinder in your own shop—watch it hog metal as much as 60% faster than anything you've ever seen. You'll find B&D Sander-Grinders run cooler, allowing longer continuous operation. Perfect overall balance and light weight assure less operator fatigue. Hot exhaust air is blown away from user.

To speed body sanding, grinding, cutting, brushing; to smooth welds, remove rivets, cut off studs fast, call your B&D jobber or mail coupon for a demonstration of a B&D 7" Sander-Grinder.

**REMOVE MATERIAL 60%**  
**FASTER** under maximum  
load conditions. Cut down  
time with a hard-working  
B&D Sander-Grinder.

**BODY SANDING GOES**  
**FASTER** with the operator  
in control at all times. B&D  
Sander-Grinders ready  
work for paint—fast!



Black & Decker Tools are sold by leading distributors everywhere. For sales or service look in the Yellow Pages of your telephone book under



# Black & Decker®

CUTS MAN-HOURS TO MINUTES

THE BLACK & DECKER MFG. CO., Dept. 5109  
Towson 4, Md. (In Canada: Brockville, Ont.)

- Please arrange a demonstration of Sander-Grinder  
 Please send additional information on \_\_\_\_\_

Name \_\_\_\_\_ Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_



Drills



Vacuum  
Cleaners



Polishers



Valve  
Refacers



# More valves are ground on **SIOUX** equipment than all other kinds combined



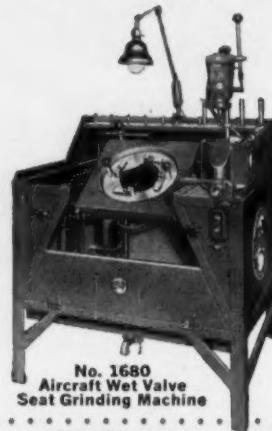
No. 682L  
Valve Face  
Grinding Machine



No. 645L  
Valve Grinding  
Machine



No. 687  
Valve Service  
Combination



No. 1680  
Aircraft Wet Valve  
Seat Grinding Machine



No. 1675BB  
Aircraft Valve Seat  
Grinder Set

Ever since valve grinding equipment has been made, men who lay down their hard, cold cash, have been using, comparing, testing. The result? More Sioux valve grinding equipment is in use than all other kinds combined! It's preferred for precision, for length and breadth of line, for incomparable long life. There's Sioux equipment for the biggest diesel. Sioux alone makes a wet valve face grinding machine

for aircraft radial engines. There's a complete line of Sioux valve servicing equipment for small engines. And for everything in between. Twenty-four pages of the Sioux Catalog are devoted to illustrations, descriptive matter, and specifications on valve servicing equipment. There is no better place to turn for information and help than to SIOUX.

*Ask for the 1961 catalog!*

**ALBERTSON & CO., INC.** SIOUX CITY, IOWA, U.S.A.

Factory branch—575 Connecticut Ave., South Norwalk, Conn.

Canadian Warehouse—379 Comstock Rd., Scarborough, Toronto, Ont.

Sold through Distributors in U.S., Canada, and Overseas

Consult the yellow pages under "Tools, Electric" for U.S. Distributors

▲ AIR AND ELECTRIC IMPACT WRENCHES ▲ DRILLS ▲ SCREWDRIVERS ▲ NUT RUNNERS ▲ SANDERS ▲ GRINDERS  
▲ ELECTRIC POLISHERS ▲ FLEXIBLE SHAFTS ▲ PORTABLE SAWS ▲ VALVE GRINDING MACHINES ▲ ABRASIVE DISCS



## This emblem wants to work for you

Whenever people see this famous emblem, they're reminded to 'find it fast' in the Yellow Pages. And when you associate your business . . . your name . . . with this emblem, you're reminding prospects to find you in the Yellow Pages when they're ready to buy. So—if you're advertising in the Yellow Pages now, it's just

good sense to display this emblem in your other advertising, on your business vehicles, at your place of business. And if you aren't advertising in the Yellow Pages yet, it's high time you did. Call the Yellow Pages man at your Bell Telephone Business Office for details on how you can put this emblem to work.

# MOPAR

## COVERS ALL THE BASES!



Genuine "new"  
MoPar Parts  
and Accessories  
for Chrysler  
Corporation  
vehicles

New MoPar  
"Universal" Parts  
for other makes  
of vehicles

MoPar Approved  
Remanufactured  
Parts for Chrysler  
Corporation  
vehicles

Rempar Quality  
Remanufactured  
Parts for other  
makes of vehicles

for quality parts and accessories...

# YOU NAME IT...MOPAR'S GOT IT!

Whatever car or truck you service—whatever your replacement requirements may be—MoPar has the *complete quality answer—the right part at the right place at the right time!*

MoPar parts fit right, work right, install quickly, save labor time, keep your jobs rolling on schedule.

Whether you use new parts and accessories or remanufactured parts, you can install these replacements with confidence . . . knowing that MoPar

quality will back up your reputation for fine service.

MoPar is ready now to give you fast, efficient service and delivery on any part—from cotter pins to 8-cylinder engines—on any size orders—from the smallest to the largest.

Smart service operators know that it pays to install *quality* parts as replacements for original equipment. Call your MoPar Wholesaler or Chrysler Motors Corporation Dealer.



MoPar Parts and Accessories, Chrysler Motors Corporation, Detroit 31, Michigan



another  
advance in THIN  
cylinder head  
gaskets

# new SHIM-BESTOS®

SOLVES  
leakage and seepage  
problem on  
high compression engines  
STOPS  
costly  
comebacks!

Why take chances on conventional cylinder head gaskets when you can have the profit protection of new, specially designed SHIM-BESTOS... Leakage and seepage, frequent causes of comebacks, can be stopped without reducing high power compression! SHIM-BESTOS has double the compressibility of present materials in an exceptionally thin design, plus exceptional fluid resistance to hot oil, anti-freeze and water. Installations are better, high power compression is maintained and you make more profits. Ask your Fel-Pro Jobber for SHIM-BESTOS cylinder head gaskets the next time you order. Be sure to ask him for a copy of the new, free, fact-folder or write direct. Felt Products Mfg. Co., 7450 North McCormick Blvd., Skokie, Illinois. Since 1918.

**FEL-PRO**

R-638R

**SHIM-BESTOS**  
**gaskets**



specially designed  
with your profit  
uppermost in mind!

# **JOBBER EXECUTIVE EDITION**



## **"See All That's New In '62"**

**A**LTHOUGH the curtain raising of the 1962 International Automotive Service Industries Show is a few months away, early birds may want to mark their calendars.

The 1962 Show will be held February 28 to March 3 at the Navy Pier in Chicago. The show follows the annual convention of the Automotive Service Industry Assn. at the Sherman Hotel, February.

The famous pocket-size Motor Age's Who's Who will be distributed at the show while the preview of the show and the products of the industry will be packaged in the January Automotive Service Issue of MOTOR AGE.

With the popularity of these international exhibitions increasing yearly, it is forecast that the 1962 Show, under the auspices of Motor and Equipment Manufacturers Association (MEMA) and Automotive Service Industry Association (ASIA) will be the largest and most spectacular yet. The attendance of overseas guests increases annually and it is expected that up to 500 manufacturers will be represented at the Navy Pier. Show will be handled by Hall-Erickson, Inc., show managers (formerly A. B. Coffman Associates).

### **"Closed" Days**

On February 28, the Show will be open from 10 A.M. to 6 P.M. to manufacturer and wholesaler members of the two sponsoring associations only, including export agents of exhibiting manufacturers and overseas guests.

On March 1, the Show will be open from 10 A.M. to 6 P.M. to the above, plus guest wholesalers, car factory executives and national accounts.

On March 2, the Show will be open from 10 A.M. to 4 P.M. to all those eligible on Wednesday and Thursday, plus fleets operating their own service shops.

### **Trade Days**

The Show will be opened to the Automotive Service Trades on March 2, from 4 P.M. to 10 P.M., and on March 3, from 10 A.M. to 4 P.M., when the Show will officially close. All others eligible on the preceding days are also welcome.

At the 1960 I.A.S.I. Show in the New York Coliseum, there was a total attendance of 34,087. 461 members exhibited. Present indications are that the record attendance of 1960 will be shattered in 1962.

# PUBLIC RELATIONS

**As a function  
of marketing**



**W**HAT is Public Relations? In general, public relations has been defined as "the creation and carrying out of broad policies that will be reflected in favorable public opinion." Although there are many other definitions, this one seems to stand up under almost any measurement of the public relations function in business and industry.

Public relations is an important link in the chain of communications, not only externally, but internally as well. Properly used and integrated into your sales program, it is a powerful aid to

sales and company recognition. Teamed with advertising, planned PR can catalyze an entire advertising program and make it more effective.

A PR program must be an integral function of a company's overall marketing program. Because, public relations is actually designed to help move products off the shelves! Of course, it is recognized that such phases as community relations, stockholder relations and employee relations are normally not thought of quite so commercially. All of these phases really exist to create a selling atmosphere in which the company can operate.

*Public Relations, when handled properly, can be an extremely powerful sales tool. Here are excerpts from a speech made before the Automotive Advertisers Council which can help you plan your campaign*



WINSTON C. WILLIAMS  
Marketing Services Manager  
Blackhawk Manufacturing Co.



*Editor's Note: The author has developed an interesting Check-list of Public Relations Activities, as follows.*

The objectives of our over-all long-range program is to inform each segment of the public important to us that the Corporation is:

1. An aggressive, forward-looking organization with top management know-how. A management that utilizes the most modern methods of corporate planning throughout its management team.
2. A growth company—a good investment.

3. Financially sound.
4. Manned by trained, capable people.
5. Assured of a good future secured through ample research, new product, new manufacturing technique and personnel development—that it is a leader in the search for a better way to make products and has the skill to design and manufacture quality products.
6. A fine employer interested in the welfare and development of its employees.
7. A good Corporate Citizen interested in the progress and welfare of the communities in which it operates.

*1. Promotion of the Corporation*

- a. Mass-mailed news releases to applicable local and national media concerning such general news as:
  - New services or changes in existing ones
  - Corporate personnel changes, promotions
  - New plant facilities, plant expansions
  - New operating practices
  - Institution of new employee practices
  - Reports on company earnings, sales, losses, or other information about the company's current financial situation
  - Installation of new machinery together with data on how it will affect employment, increase production, reduce costs, etc.

*Continued on page V*

**THE  
PULSE  
OF  
AUTOMOTIVE  
BUSINESS**

**Automotive Wholesaler's Sales and Inventories**

Data from the Bureau of the Census, Dept. of Commerce

	Per Cent Change in				
	Sales	Inventories	June	June	June
Region	1961	1961	1961	1961	1961
New England.....	+12	+6	+1	-1	+6
Middle Atlantic.....	-4	+6	0	+7	+2
East North Central.....	-2	0	-5	+9	-3
West North Central.....	-6	+7	-3	-7	-4
South Atlantic.....	+7	+10	+5	+5	-1
East South Central.....	+8	+8	+2	-1	-2
West South Central.....	-5	+11	-3	+2	-1
Mountain.....	-5	+2	-5	0	-6
Pacific.....	+2	+9	-1	-3	-3
United States.....	-1	+6	-1	+1	-2

**Monthly Sales of Automotive Jobbers  
incl., Tire and Tube Wholesalers**

All Data Are in Millions of Dollars

Month	1961	1960	Per Cent Change
Jan.	\$ 428	\$ 403	+9.38
Feb.	401	415	-3.38
Mar.	453	453	None
Apr.	455	477	-4.61
May.	477	494	-3.40
June.	507	511	-0.78
July.	...	...	...
Aug.	...	...	...
Sept.	...	...	...
Oct.	...	...	...
Nov.	...	...	...
Dec.	...	...	...
Total—12 Months...	\$2,721	\$2,753	-1.16
Total—6 Months...	\$2,721	\$2,753	-1.16

**Monthly Sales of Franchised Car  
Dealers**

All Data Are in Millions of Dollars

Month	1961	1960	Per Cent Change
Jan.	\$ 2,241	\$ 2,578	-13.07
Feb.	2,154	2,670	-19.14
Mar.	2,648	3,039	-12.87
Apr.	2,494	3,119	-20.04
May.	2,776	3,054	-9.10
June.	2,780	3,015	-7.80
July.	2,468	...	...
Aug.	2,616	...	...
Sept.	2,324	...	...
Oct.	2,588	...	...
Nov.	2,633	...	...
Dec.	2,437	...	...
Total—12 Months...	\$32,701	...	...
Total—6 Months...	\$15,083	\$17,475	-13.63

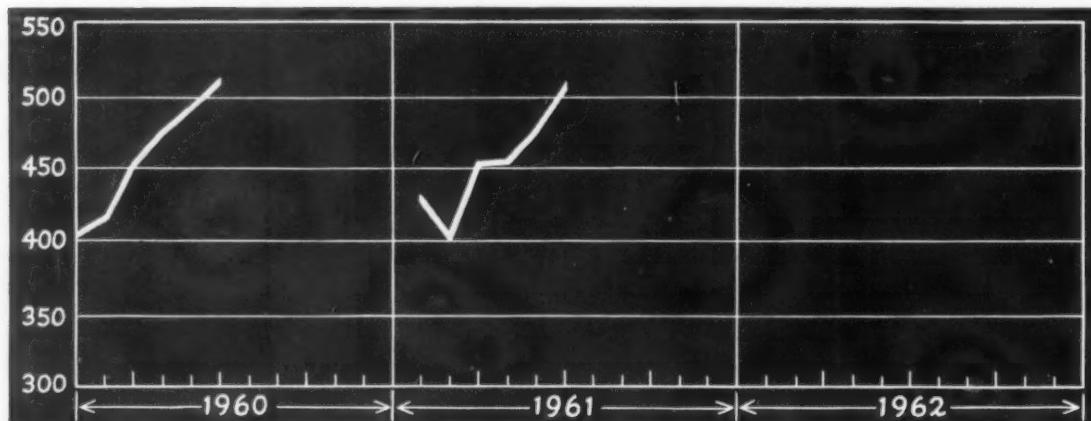
**Monthly Sales of Gasoline Service  
Stations**

All Data Are in Millions of Dollars

Month	1961	1960	Per Cent Change
Jan.	\$1,381	\$1,356	+1.84
Feb.	1,282	1,285	-0.23
Mar.	1,429	1,387	+3.03
Apr.	1,439	1,457	-1.24
May.	1,523	1,489	+2.28
June.	1,573	1,524	+3.21
July.	1,597	...	...
Aug.	1,568	...	...
Sept.	1,470	...	...
Oct.	1,505	...	...
Nov.	1,485	...	...
Dec.	1,511	...	...
Total—12 Months...	\$17,594	...	...
Total—6 Months...	\$8,627	\$8,498	+1.52

**MONTHLY SALES OF AUTOMOTIVE WHOLESALERS—  
INCLUDING TIRE AND TUBE WHOLESALERS**

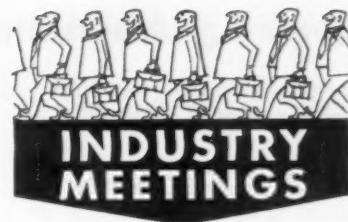
(All Data in Millions of Dollars)



## Public Relations . . . . . Continued from page III

- Layoffs or reduction of production, strikes, etc.
  - Plant accidents
  - Annual meetings, annual report
  - Reports of speeches by Corporate staff personnel
  - b. Feature articles in applicable media promoting the Corporation's financial image. Stories in such publications as BUSINESS WEEK, FORBES and WALL STREET JOURNAL to reach those in the financial community who influence stock purchases, loans and relationships with suppliers and customers. Some stories should cover general progress that the Corporation is making, while others should stress a specific business of the Corporation.
  - c. Feature articles in applicable media that promote management concepts and methods of operation of the many central staff divisions and departments, including the over-all Corporate Management, R & D, Engineering, Marketing, Manufacturing, Purchasing, Controls, Industrial Relations, etc.
  - d. Merchandising Corporate advertising themes through specialized direct mail to influence groups, applicable mass-mailed publicity, feature stories that tie in, etc.
  - e. Merchandising publicity results. Following publication of feature material, the making of reprints and seeing that they are gotten into the hands of customers, financial leaders, stockholders, suppliers, community leaders, etc. as applicable.
  - f. Presentations before security analysts groups.
  - g. Induce brokerage firms to prepare reports about the company.
- 2. *Promotion of the Corporation's divisions and subsidiaries*
    - a. Mass-mailed news releases to all applicable media concerning such news as:
      1. Development of new products and processes —or changes in existing ones
      2. Unusual applications of products by customers
      3. New services or changes in existing ones
      4. New operating practices (sales and distribution, etc.)
      5. Key personnel changes (staff, sales, etc.)
      6. Appointment of new distributors, agents, dealers, etc.)
      7. Participation in trade conventions and shows
      8. Installation of new equipment (manufacturing, quality control, etc.)
      9. Significant individual sales of products—specific product, customers, application, etc.
      10. Sales volume summaries
      11. Speeches delivered before trade and business groups
      12. Sales promotion activities (what is being done to help sell products, get new dealers, etc.)
      13. New literature
    - b. Exclusive feature articles for applicable media highlighting:
      1. Unusual product applications by customers
      2. Detailed design of new products
      3. Redesign of existing products
      4. How to *select* and *buy* the types of products made

*Continued on page VII*



Sept. 13—American Petroleum Institute Div. of Marketing, Lubrication Committee Meeting, Traymore Hotel, Atlantic City, N.J.

Sept. 13-15—National Petroleum Assn. Annual Meeting, Traymore Hotel, Atlantic City, N.J.

Oct. 6-8—Wisconsin Automotive Wholesalers Assn. Convention, Hotel Dell View, Lake Delton, Wisconsin.

Oct. 11-14—Automotive Wholesalers of Texas Convention and Booth Conference, Granada Hotel, San Antonio, Texas.

Oct. 30-Nov. 2—Automotive Warehouse Distributors Assn. Convention, Muehlebach Hotel, Kansas City, Mo.

Nov. 8-10—Automotive Parts Rebuilders Assn. Convention & Trade Show, Hotel Biltmore, Los Angeles, Calif.

Nov. 16-18—Virginia Automotive Wholesalers Assn. Convention, Hotel Roanoke, Roanoke, Va.

Nov. 16-19—California Automotive Wholesalers Assn. Convention, Catamaran and Babia Motels, Mission Bay, San Diego, Calif.

Nov. 17-19—Automotive Wholesalers of Illinois Convention, St. Nicholas Hotel, Springfield, Ill.

Nov. 27-30—National Automotive Parts Assn. Annual Meeting, Drake Hotel, Chicago, Ill.

Dec. 7-14—Automotive Electric Assn. 44th Annual Meeting and Manufacturers-Distributors Conference, Edgewater Beach Hotel, Chicago, Ill.

Jan. 19-21, 1962—Ohio Automotive Wholesalers Assn. Booster Convention and Booth Show, The Neil House, Columbus, Ohio.

## **Motor Age Newssettes . . . . .**

### **North Carolina To Hold First State Sponsored Trade Fair**

Modeled after the famed trade fairs of Europe, an event designed to sell the products of Tar Heel industry on a worldwide basis is now getting underway under full sponsorship of the State.

A gigantic showcase of the products of North Carolina, the exhibition will include textiles and textile machinery; electrical parts, timber and paper, meats and meat products, chemicals, brick and clay products, tobacco products and farm machinery. October 12, 1961 is the opening day of the fair.



### **Gulf And Western Acquires Savannah Wholesale Chain**

American Parts Company, parts division of Gulf and Western Industries, Incorporated, has announced the acquisition of Motor Supply Company, Savannah, Georgia, which operates nine wholesale automotive parts outlets in Georgia and South Carolina.

### **Arrow Armatures Receives A.S.I.A. Award**

Arrow Armatures Company, Boston, Massachusetts, has been given the Automotive Service Industry Association's Distinguished Service Award for "exemplary and enduring service to the community and to the industry."

In a letter accompanying the award, J. L. Wiggins, A.S.I.A. executive vice-president said, "Your company represents the finest type of independent business whose foresight, initiative and faith in the future of this country has contributed to the growth of our free enterprise system and to the growth of the automotive service industry."

### **Monroe To Double Size Of Newest Plant**

Construction is starting immediately on an addition to the Cozad, Nebraska plant of the Monroe Auto Equipment Company. The addition, which will double the size of the plant dedicated less than two months ago, was necessitated by the sharply rising demand for shock absorbers. Plans are also being made to increase the capacity of Monroe's Hartwell, Georgia plant, it was announced.

Prestolite, one of the oldest names in batteries, is being readied to be used on a full line of automotive products. Electric Autolite Company President Robert H. Davies (left) discusses some packaging suggestions for the new line with artist Stuart A. Friedrich.



Discussing the final judging session at which 88 award winners were selected for the 1961 National Vehicle Safety-Check for Communities are (left to right) M. R. Darlington, Jr., Managing Director, Auto Industries Highway Safety Committee; Mrs. B. V. Todd, Director, Women's Division, Automotive Safety Foundation; Araby Gilmore, LOOK Magazine; and Wainright Bridges, Director, Uniform Laws Program, American Association of Motor Vehicle Administrators.



Miss Doctor of Tire Service accepted official diploma as Tire Service Expert from Al Kovarik, Big Four's industries training Director. This lass can handle tire changes with Big Four's new Mark 1 tire changer.

## Motor Age Financial Reports . . . . .

**Electric Autolite**—The Electric Autolite Company has decided to accept all common shares which have been tendered to it under its invitation to shareholders dated July 5, 1961. Robert H. Davies, president, has announced.

The acceptance of these tenders, Mr. Davies stated, should result in the Company acquiring for retirement a total of 309,393 shares, at an average price per share of approximately \$66.88.

**Borg-Warner**—Second quarter sales and earnings of Borg-Warner Corp. were better than those of the first quarter, in contrast to last year when the second quarter trend was down. Roy C. Ingersoll and Robert S. Ingersoll, chairman and president respectively, said in the midyear report.

For the six months ended June 30, sales were \$289,067,216,

compared with \$323,068,651 in the first half of 1960, when sales were at near-record levels. Earnings were \$9,605,016 or \$1.06 per common share, against \$15,239,075, or \$1.68 a share, in the corresponding period last year.

**Rubbermaid**—Both sales and earnings of Rubbermaid, Incorporated were up during the third quarter ended June 30. President Donald E. Noble reported this at the regular meeting of the company's board of directors.

Net sales of \$6,805,000 were the highest for any third period in company history, topping last year's record third quarter by 2.3%. Earnings of \$340,000, or 24 cents per share, for the quarter just ended, also showed improvement over the first and second fiscal quarters when earnings were 17 and 13 cents respectively.



John Bynum, (center) Atlanta district sales manager for Ford Motor Company's Motorcraft Division, checks a shipment of 150,000 Ford Autolite spark plugs—the first full truckload to arrive in the south—with W. C. Collins (left) and W. W. Warr, Jr., of his Atlanta office staff. The record shipment, destined for the Auto Electric & Magneto Company of Atlanta, includes new replacement spark plugs for Ford, Chrysler, and American Motors passenger cars.

## Public Relations . . .

*Continued from page V*

5. How to properly apply the types of products made
6. How products are manufactured, quality control measures taken, engineering and research set-up, etc.
7. Unusual management concepts utilized within the division (employee relations, sales approaches, purchasing, quality control approach, etc.)
8. How costs are controlled and reduced
- c. Special attention at industrial trade shows, expositions, etc. where an exhibit and/or speaker is present.
  1. Always—a special kit containing product data (and speaker data where applicable)
  2. Where desirable—a public relations man on the spot to handle taking of photos for release, handle liaison between the press and divisional representatives, discuss specific story ideas, etc.
- d. Special press conferences, including development of press material, making arrangements, handling all details of liaison with the press, etc.
  1. Introduction of significant new products
  2. Expansion of manufacturing facilities
  3. Completion of significant changes made in existing facilities
  4. Changes in executive management
- e. Promotion of key executives through speechmaking, panel appearances, etc.

# **Motor Age's**

## **WHO'S WHO**

### **Recent Appointments**



**Robert E. Kinnen** (photo)—as director of merchandising and advertising for Seiberling Rubber Company.

**Howard C. Wittlieb**—as service and educational representative for Holley Carburetor Company.

**John Bury**—as assistant general sales manager of the After Market Division of Purolator Products, Incorporated.



**Harmon Oren, Jr.** (photo)—as sales manager of the Watervliet Tool Company, Inc., a subsidiary of CMP Industries, Inc.

**Charles C. Dybvig**—to the newly created position of vice president of Marketing for the Dana Corporation.

**Karl O. Nygaard**—as manager of market planning for the B. F. Goodrich Tire Company.

**John M. Tyson**—to the newly created position of vice president of Sales of the Simoniz Company.



**John R. Church** (photo)—as director of distribution and marketing for AC Spark Plug Division of General Motors.

**Roy E. Clarke**—as regional sales manager in the Southwest for P & D Manufacturing Company.

**George W. Phillips**—as president of Bendix de Brasil Equipamentos Para Autoveiculos, S.A., Campinas, Brazil.

**Michael K. Dugener**—as vice president of Sales for Malsbary Manufacturing Company, Oakland, California.



**Vincent L. Benton** (photo)—as automotive distributor sales manager for the Thermoid Division of H. K. Porter Company, Inc.

**Russell B. Miller**—as general sales manager of the Chicago Pneumatic Tool Company.

**Paul F. Allmendinger**—as director of engineering for the electrical products group of the Electric Autolite Company.

**A. B. McKee**—as manager of filter sales for Walker Marketing Corporation, division of Walker Manufacturing Company.

**George Friend**—as quality control manager for the Wire and Cable Division of Electric Autolite Company.



**Joseph A. Colon** (photo)—as vice president of Sales, Rubber Products Division of Dayco Corporation.

# MOTOR AGE Newscoop

Aluminum Engine's Future

Wage-Hour Violators

Rust-Prevention

Cutting Air Pollution

Rearmament & Boom

Impact of 12-12 Warranties

2-Car Families

## In the days ahead....HERE'S WHAT TO LOOK FOR!!!

(Items gathered and edited by Ed Janicki, Bill Montgomery and Neil Regeimbal)

### Car Makers Perplexed On Mechanic Training Issue

SHOULD AUTOMOBILE COMPANIES HELP independent garages train their mechanics? Foot the bill for everything, including shop manuals and other training aids? That question has been raised in past.... It's popping up again.

Although some car companies have been conducting training programs for the independent—on a limited scale—they still say an emphatic "no!" to the whole idea.... "Why take business away from our dealers?" is their premise for argument.... But privately, certain factory service people feel differently... Says one top factory service official: "I'm all for training independents.... After all, the independents and service stations do 80 per cent of the service work on today's cars.... Training these mechanics to repair our cars correctly should be our responsibility.... If there were no independents, our dealers couldn't provide adequate service even if all of them stayed open 24 hours a day."

### Are Aluminum Engines Coming—or Going?

WHAT'S HAPPENED TO ALUMINUM ENGINES? You don't hear much about them these days.... Hullabaloo sparked by aluminum engine enthusiasts last year is dying down.

Lightweight engine, it appears, will eventually go by wayside—along with fuel injection, air suspension and other industry advancements which just didn't quite work out—unless vast improvements are made.... At least two auto makers are giving aluminum engines the boot next year.... Other makers aren't too happy with them.

As one industry official told Motor Age: "Aluminum engines are just a flash in the pan." Auto makers now feel they can achieve more with the old cast iron engine block.... While certain aluminum components are here to stay, the future of the aluminum engine is nebulous.... High manufacturing costs and corrosion have been two biggest problems holding back aluminum engine progress.

## **Neil Regeimbal's Washington Almanac**

The Kennedy Administration is ready to freeze prices and wages on a moment's notice. Outbreak of limited war anywhere would mean immediate controls



**Neil Regeimbal**  
*MOTOR AGE's News  
Editor, Wash., D.C.*

on prices, wages, distribution and consumption. A sudden wave of inflation and "scare buying," even without war, could bring stronger indirect controls such as higher taxes, higher interest rates and control of consumer credit. Unlike wartime emergencies in the past, the White House won't wait for Congress to act—Kennedy will rely on Presidential powers in the constitution to issue control orders swiftly.

\* \* \*

The new minimum wage-hour law went into effect this month (Sept. 3). All dealers should make certain whether they are covered or not, and if they are, make sure they comply with the reporting requirements as well as the salary requirements.

Briefly, repair shops are covered only if they take in more than \$1 million a year, or if part of a chain, take in more than \$250,000 a year. Service stations are covered if they gross more than \$250,000 a year as far as the new \$1.00 an hour minimum wage, but not as to overtime. Car dealers are exempt.

## **Government To Expose Wage-Hour Violators**

EMPLOYERS WHO VIOLATE FEDERAL wage-hour rules can expect to read about their sins in government press releases.... Starting this month, Labor Secretary Goldberg is going to issue lists of companies caught paying sub-standard wages.... Up to now, names were not made public.... The government's announcements will state the name of offending company, amount of back wages to be paid, and nature of violation.

## **327 To 1 Are Pretty Good Odds**

DEPARTMENT OF COMMERCE STATISTICS show there is one service station for every 327 motor vehicles registered in the U.S.... In 1958, when last official count was conducted, there were 206,302 service stations and more than 67 million motor vehicles.

Ten years earlier, there were 179,647 stations to care for some 41 million vehicles.... This was a ratio of one to 226.... This decade saw a net increase of 14.8 per cent in number of service stations compared with a gain of 66 per cent in registrations.... Difference in ratio of stations to cars reflects pronounced trend to larger and more efficient stations.

## **Compact Owners A Special Breed**

FRANK WALTER, PLYMOUTH'S CHIEF ENGINEER-Director of products, comes up with some interesting statistics about compact car owners. According to Walter, owners use their cars more for commuting and less for pleasure... They drive about 10 per cent fewer miles per week than the standard-size car owner.

Other pertinent observations: compact car owners go on fewer long trips; they expect to keep their cars longer; they are younger; their income is slightly higher; and they are more interested in travel, clothing, life insurance, education and investment.

## **NADA Claims Dealers Innocent Of Customers Sins**

QUIRK IN TAX LAWS WHICH PERMITS government to force car dealers to pay some of a customer's unpaid tax bill is being fought by NADA.... Association is now building up evidence on which to base a bid for corrective legislation.... Law permits government to recover a car or truck purchased or taken in trade from a taxpayer against whom taxmen have imposed a tax lien.... Dealer is innocent, but still suffers.

## Auto Industry Moving Fast In Rust-Prevention

INDUSTRY'S WAR AGAINST RUST is being stepped up.... Some 1962 models, will start making their debuts this month.... They will show various applications of new corrosion-resisting materials.... New methods of protecting cars against rusting out are being introduced even more rapidly than most industry observers predicted.

Backing up this forecast is the impressive program of technical papers announced by American Society of Body Engineers.... Of the 12 papers selected for presentation at the Society's 16th annual meeting in Detroit in October, more than half are related to corrosion problems of auto industry.

## FTC Wants Oil Companies Out Of Retail Business

FEDERAL TRADE COMMISSION CHAIRMAN Paul Rand Dixon is mapping a strong campaign against marketing practices of major oil companies.... Eventual outcome, Chairman hints, is to force companies to divorce themselves from retail outlets and let service station operators own their stations.... First steps will be moves against alleged price fixing, price discrimination, and overriding commissions on TBA sales.... FTC has stepped up its probe of supplier-retailer relationship in oil marketing.

## Congress Would Blame Execs For Price Fixing

BLAME FOR ANTITRUST VIOLATIONS would be pinned squarely on top executives of industry under measures pending in Congress.... Proposal would send corporation presidents and board members to jail for negligence in permitting price-riggers to operate within their companies.... Measures grew out of price-fixing investigation in electrical industry.

## Government Going All-Out To Clear The Air

FEDERAL GOVERNMENT HAS THROWN its weight behind drive to cut air pollution by use of blow-by devices.... From now on, all cars and trucks purchased by government for civilian use will be equipped with these devices.... This is about 7,000 new vehicles a year.... Many states and counties have adopted this practice, or soon will. U.S. officials say they have been told.... Devices are said to cut exhaust smoke by about 25 per cent.... Military services are also expected to adopt this policy.

## Ed Janicki's Dealer News

New ideas for "supermarket" retailing of new automobiles are being tried out every day. Not many get off the ground. In Detroit several years ago a group



Edward Janicki  
*MOTOR AGE's News  
Editor, Detroit*

of speculators jumped into such a venture, with the hope of giving birth to what it thought would become the country's largest supermarket operations. The thing went down the drain within a few weeks. Now we hear that a proposed market for retailing cars in one of Tennessee's major cities has flopped on its face.

The law made sure of that. Seems the Tennessee Motor Vehicle Act has some strong teeth in it. The company which jumped into the venture decided that it couldn't profitably establish the expensive facilities needed for parts and service and still conduct its mass peddling operation—it just couldn't meet the requirements of the Motor Vehicle Act.

\* \* \*

Studebaker - Packard has opened two more new factory retail branches. Latest units bowed in Fort Wayne, Ind., and Tulsa, Okla., and bring to five the total number opened by S-P since April. Others are now in operation in New York, Kansas City and Toledo.

## **Rearmament Could Cause Boom—And Inflation!**

A BUSINESS BOOM, TEMPERED WITH THREAT of serious inflation and possible profitless prosperity, is in sight as a result of budding military buildup.... Current rearmament drive touched off by Berlin crisis will fuel business upsurge this fall.... It will bring a production step-up.... This will result in increases in jobs, overtime pay, and strong retail buying as personal incomes increase.... Sales of cars, appliances, similar products will feel impact.

Two problems will result: Inflation, which government is already planning to fight with tighter money, maybe higher taxes; some loss of skilled workers such as mechanics as military leaders increase draft calls.

## **Two-Ply Tires Not The Latest—Just The Lightest**

TWO-PLY TIRES, WHICH ARE CURRENTLY spreading throughout the industry, aren't really so new.... B. F. Goodrich notes that two-ply tires were used on cars as far back as 1913.

Two-ply construction was dropped when weight of cars began to exceed load-carrying capacity.... However, in those days, two-ply carcasses were reinforced with cotton material.... Today's two-ply is made with synthetic fibers which are much stronger than cotton.... It has same strength as a four-ply or the same quality level.... It also gives a softer ride and generates less heat at high speeds.

## **12-12 Could Cause Bad Habits**

SOME CAR COMPANIES ARE WORRIED about impact 12-12 warranties may be having on replacement market.... They feel many motorists may be over-neglecting their automobiles once the warranty period expires by staying away from normal required maintenance, such as changing sparkplugs, etc.... Industry is studying after-market effects.... Expects to come up with some answers by the end of year.

## **What Happened To The Overdrive?**

"WHAT HAPPENED TO OVERDRIVE," asks one car company? The three-speed transmission happened, that's what.... Company notes that most people who bought overdrive wanted gasoline economy it afforded on long trips.

The three-speed automatic made possible a more economical gear ratio.... That, combined with fact that not many people really like to shift gears, started downhill journey of the popularity of overdrive.

## **Two Car Families On The Increase**

CONTRARY TO SOME PRESENT-DAY THINKING, the automobile has not lost its "status symbol." Although such things as swimming pools, hi-fi sets, summer homes and boats have come along, the automobile is still an important thing to boast about to your friends and neighbors.... But not unless you can refer to it in "plural" form.

"More and more American families are aspiring to own a stable of automobiles," says Dodge General Manager Byron Nichols, "not necessarily new automobiles, but the kind that will provide individual, dependable and functional transportation for every member of the household." Nichols notes in last six years, multi-car ownership increased 68 per cent.

# FOR THE RECORD



## NCOUTLO Intensifies Drive For Unified Vehicle Legislation

The National Committee on Uniform Traffic Laws and Ordinances has launched an accelerated program to promote model uniform motor vehicle legislation among the 50 states.

The Committee, whose principal products are the uniform Vehicle Code and the Model Traffic Ordinance, embarked on the expanded program after months of study by a special subcommittee.

The group, headed by Robert Montgomery, Jr., is dedicated to the promotion of model uniform traffic laws and ordinances.

## Seat Belt Users Now Over Two Million

The first nationwide poll of seat belt installation and use indicates that over two million automobiles using this country's streets and highways are now equipped with seat belts for passenger safety.

M. R. Darlington, Jr., Managing Director of the Auto Industries Highway Safety Committee stated: "The fact that 3.3% of our automobiles are equipped with seat belts is surprisingly high in view of the relatively recent public acceptance of their use."

## There's That Name Dykstra Again

Nicholas Dykstra (no relation to Ford Motor Company's new president) has been named president of Mack Trucks, Inc.

Mr. Dykstra, who came to Mack from McDonnell Aircraft

Corporation of St. Louis, will fill a vacancy that has existed for over two and one half years.

## Two New Directors Join NADA Board

Nelson C. Quillen, New Castle, Delaware, and J. Alfred Begnaud, Lafayette, Louisiana, have been elected to the Board of Directors of the National Automobile Dealers Association.

Re-elected for three year terms were, John H. Lander of Georgia, William E. Voyce, Jr., of Maryland, J. M. Allton of Missouri, W. N. Neff of Nebraska, Archie Pozzi, Jr., of Nevada, and H. Mead Norton of Oklahoma.

The group will hold its next meeting in conjunction with NADA Convention in Atlantic City, New Jersey, next February.

## American Motors Quality To Be A-OK

George Romney, president of American Motors, has announced the launching of an "A-OK Quality Workmanship" program designed to combat the "Age of the Goof-Off."

Romney defined the Age of the Goof-Off "as the recent decline of pride in workmanship and personal integrity in private, as well as public conduct during the last few years. The new drive for quality is geared to make the worker proud of his product."

## Autolite Now A Ford Division

Ford Motor Company has chosen Autolite to replace Motorcraft as the name of its new replacement

*Continued on next page*

At a recent meeting of the Board of Directors of the Chrysler Corporation, L. L. Colbert (left) resigned his positions as Chairman and President of the company. Lynn A. Townsend (right), who has been Administrative Vice President, was named to succeed Mr. Colbert as President.



## For the Record . . .

*Continued from page 45*

parts division. The division is composed of separate sales departments responsible for marketing Ford products in the replacement parts field and as original equipment to manufacturers. The decision to change the division title was based on the greater public awareness of the Autolite, according to a Ford spokesman.

### J. P. Seiberling Retires

After serving as chief executive officer of the Seiberling Rubber Company for more than half of its forty year history, J. P. Seiberling has retired as the company's president.

Mr. Seiberling, who will continue as chairman of the board of directors, had been president since 1938, when he succeeded his father, who founded the company in 1921.

### Dealer Council Chairmen Back Task Force Program

Chairmen of the National Factory Dealer Councils have reviewed and endorsed the principles recently set forth in a report of the National Automobile Dealers Association Task Force Committee.

The committee's program seeks a solution to the current economic crises confronting the nation's franchised new car and truck dealer body. The report indicates that the retail segment of the automobile industry is confronted with three major problems:

1. Decreasing profit opportunity.
2. Lack of favorable business climate.
3. Lack of business management.



"Always leave them laughing," is the motto of the Morris Meat Market in Brooklyn, N.Y., who's deliverymen keep an eye out not only where they are going, but where they have been.

If you like to go camping on your vacation, this could be just the thing for you—and the "Waterfall" camping unit on the truck isn't bad, either. It sleeps four and has all the comforts of home.



# **REPORT to our READERS**



## *More Mechanic Training Coming Up*

THE mailman has an amazing way of proving things. In July, MOTOR AGE introduced its Mechanic Training Program, a free training course, which has been subscribed to by all types of readers. Our postman looked like he was delivering Income Tax Returns. He was loaded (with quizzes, that is).

Not only have hundreds of mechanics enrolled in this program of education, but oldtimers as well. R. A. Lewis of Fairchild, Wisc. writes: "A good idea. This course is badly needed by present day mechanics in all fields. I taught mechanics and the electric theory for 25 years, both military and civilian life. I still like to 'brush-up' Thanx!" Thanks to you and the hundreds of others who have commented on the value of this continuing program and who are actively taking part in the studies.

### *. . . To The Ladies*

Flattering indeed, is to find a sprinkling of the fairer sex, digging in to improve their know-how. Like Mrs. Robert Biglow of Salida, Col. and Anne H. Taylor, Portsmouth, Va., bookkeeper, who says, "This is a wonderful idea; I'm sure it will help me understand many of the operations here. . ." and Mrs. Margaret L. Corbin, Pasadena,

Calif., who works with her husband in the shop. Studied his work on tune-up, generators and regulators. "I found (the course) very fascinating and interesting. Looking forward to the next copy."

### **Where Do We Go From Here?**

So many have asked how long the mechanic training program will continue. The basic electric series will be concluded next month. But that's only the beginning.

The basic study of the internal combustion engine will begin in November and will cover both the four-stroke cycle and the two-stroke cycle. After that, the course will take on basic chassis design, including the various suspension methods and the "why" behind them. Included in this study will be wheel alignment and balancing.

### **A Word Of Caution**

A handful of participants forgot to give their names and addresses. That leaves us in the dark and unable to reply to you. Also tab or clip your quiz, there's no need to seal them all around. Keep up the good work!

Faithfully yours,



E. C. Quinn, center, Group Vice President-Automotive Sales-Chrysler Corporation, expresses his views to MOTOR AGE editors Frank P. Tighe, at left, and Edward Janicki.

## Future direction for CHRYSLER DEALERS

### EDITOR'S NOTE:

E. C. (Ed) Quinn is a highly respected, hard working factory executive. He is vice-president—Sales Divisions, Chrysler Corporation. Mr. Quinn is a man of many responsibilities. Within Chrysler Sales Divisions Group,

which he heads are three individual vehicle sales divisions: the Chrysler-Imperial division, the Dodge Car and Truck division, and the Plymouth division. Simca sales activities are also included in this group.

He began work in 1919 as an apprentice tool maker with Studebaker, transferring to



"We are expecting a strong fourth quarter, perhaps the best fourth quarter in automotive history."

**Q.—What, in your opinion, is the industry outlook for the 1962 Model Run?**

**A.—**Very good! We are expecting a strong 4th quarter. Maybe the best 4th quarter in automotive history. The industry should wind up 1961 with some 5,800,000 new car sales, and 1962 should be even better.

**Q.—Why have most of the car manufacturers increased, rather than decreased, the number of models that they offer?**

**A.—**The idea of more models is in the nature of probing the market. Manufacturers have been testing consumer reaction—looking for

the sales department in 1926. He has worked in the automobile retailing field. He has been special service representative, merchandising manager and many another corporate position in the Chrysler organization, which he joined in 1934.

the proper cars for the various needs of the public. With our 1962 Chrysler Corporation models, we will simplify our offerings so that the public will know exactly what we have to sell. We will have the "right" cars for each of the four major segments of the market. Our cars will be easily understood and easily identifiable. And all of them will include those values the consumer wants most: low initial cost, economical operation, freedom from mechanical problems, and style leadership.

**Q.—Have the public and the dealers been confused by the flow of new cars and new nameplates?**

**A.—**Yes, the many new models have created a problem for the public and inventory problems for our dealers. These are some of the main reasons that in 1962 our corporation product line-up is simplified. We feel our 1962 line-up is a big step in the right direction. We believe it will be easier for the motorist to understand and buy our cars. It will be simpler for the dealer to carry the proper inventory.

**Q.—Is the generally-held, low opinion of automobile salesmen justified? If so, what can be done to solve this problem?**

**A.—**I'm a salesman, and I believe selling is a very honorable profession. Of course, in any profession you will find some people who just don't measure up. But generally speaking we find that the caliber of each salesman is quite good. It should be, because automobile salesmen are extremely valuable men. For one thing, they are essential to the automobile business, and the automobile business is a vital part of the national economy.

**Q.—Is the "Super-Market" concept of new car merchandising here to stay?**

**A.—**The super-market concept is not prevalent throughout the United States. There are some instances where it has been relatively successful. Generally speaking the franchised dealer system in which the dealer sells one or two car lines—or trucks—works to good ad-

*Continued on next page*



"We have met with the NADA Task Force—it is a good thing for the dealers and the companies to discuss their mutual problems in this fashion."

vantage. Dealers and their salesmen can then concentrate their efforts on those one or two lines. And they can provide better service for those car lines. In addition, the investment required to start and to operate a supermarket new car outlet is very large. It's not easy to come by.

**Q.—What can be done to fill the need for capable, qualified mechanics which exists today? Does Chrysler have a program?**

A.—More than 8,500 dealers service personnel were trained in our sales and service centers last year. We have five of them located across the United States. The most modern service tools and techniques are used in this training and the program is expanding every year.

We also have the Plymouth trouble shooting program—the best of its kind in the industry today. It's designed to attract young, capable, qualified mechanics for the dealer.

Last year for instance, the Plymouth program drew an estimated 1,500 young men from high school and vocational schools. Teams of two automobile mechanics find the

15 mechanical faults in a car in these local contests. The team which discovers and fixes the faults first, and then drives the car to prove it's okay, comes out on top.

We feel this a good program for young men in the high school and the vocational schools who are interested in automotive mechanics and mechanical engineering fields. Our estimate is that more than 200 contestants have gone to work for dealerships as a result of this contest. Others have gone into other related kinds of automotive repair work.

**Q.—Does Chrysler have plans for a so-called "In-between" car such as Ford is announcing?**

A.—Chrysler Corporation's line-up for 1962 will be complete. We will be fully covered in all the segments of the market from compact to low price field, to prestige and luxury cars. Our Plymouth and Dart will be the "right" cars for the expanding low-price market of the future.

**Q.—Do you anticipate increased Government intervention and control in the auto business?**

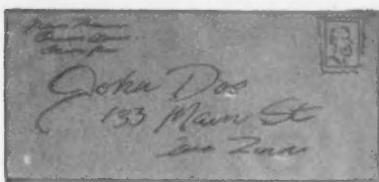
A.—We don't know of any moves in this direction. As you know, this is a highly competitive business both from a production and selling standpoint, and we feel the progress over the years in automobile design, engineering, and selling has been accomplished without government restrictions. This is the best kind of atmosphere in which to grow and prosper.

*Continued on page 125*

".... our dealers are solidly behind Mr. Townsend. They feel that the new direction of the company is now solidly established."



# Letters to the Editor



## Re: Mechanic Training Program

These quizzes are good refresher courses for new mechanics and the old timers.

Richard Kowalski  
East Meadow, L.I., N.Y.

\* \* \*

This is something worthwhile for anyone working on or around cars today. Keep up the good work.

E. M. Wagner  
Evergreen Park, Ill.

\* \* \*

I think that your article on electricity is very good for the mechanic who does not know the basic theory of electricity. I am convinced that the rest of your articles will also be very good.

Henry D'Alessandro  
Philadelphia, Pa.

\* \* \*

I never had a chance to study any type of electricity before but I found this article easier to understand than any article I have read before in any magazine. I hope they are all this way. And keep up the good work.

Charles W. Duryea  
Dalton, N.Y.

\* \* \*

Gentlemen, please forgive me for the way the paper looks but I think it is a wonderful idea of giving a free mechanic training lesson in Motor Age.

Phillip Neal  
Wheatfield, Ind.

I think this is a great idea but I don't think this type of "Basic Electricity" is of any interest or value to an auto mechanic. I am in favor of any program that will help men in the auto repair line to better understand what they are doing. Thank you for listening.

Charles E. Jones  
Norristown, Penna.

\* \* \*

This was a good article. Am looking forward to the next one.

Travis Fincher  
Tallassee, Alabama

\* \* \*

If course is to be incorporated in Motor Age I am sure the readers would like it in continuity as it is inconvenient to go from page 16 to 48 to 72 to 110 to complete reading—especially if one must refer back for full understanding.

Job Clements  
Shamokin, Pa.

\* \* \*

This course you are running is very good. If a person knows the fundamentals the more intricate problems will not be as hard. If you know the theory behind force or the reasons for certain designing, the application of it will be much easier for trouble shooting and remedying such problems.

Robert Hall  
College Point, N.Y.

This is the best thing that has happened to readers of this magazine since first published. I work 13 hours a day and can't take a course of any kind. This is just what the doctor ordered. Would like to have these courses more often than once a month. Thank you very much.

Kenneth E. Vaughan  
Philadelphia, Penna.

\* \* \*

This may be what the average mechanic badly needs.

Robert Gerard  
Bronx, N.Y.

\* \* \*

Very interesting lesson. You are to be complimented on the idea. Thank you.

Harry I. Gee  
Warrington, Pa.

\* \* \*

I am glad to see these tests. Hope to see more of them.

Everett A. Randall, Sr.  
Hopkinton, Mass.

\* \* \*

Fine test. Please continue until entire course is complete—at least once. Should be more blanks for more men.

Dale E. Wolsk  
Knightstown, Ind.

(These are but a few of the encouraging comments received from hundreds of MOTOR AGE readers. We are proud to be of greater service to you. Ed.)

# **ABC OF SHOP SAFETY**

*Safety-minded management men know the value of safe working conditions in time, anguish and money. Follow these all important steps*

**A**IM for a new safety record. Set your sights higher and keep your eye on your goal of fewer accidents and hence lower insurance costs.

**B**UY safety equipment and clothing. Dollars invested in safety attachments and protective clothing for your employees pay handsome dividends in better morale and fewer lost time accidents.

**C**REATE a feeling of pride in safe work. By constantly building up your employees who are safe workers, the show-offs learn that their unsafe antics are not appreciated by management or by other employees.

**D**EVELOP a better safety program. Any training program can be improved with new methods, approaches or ideas that will retain your employees in safer ways of performing their work.

**E**NTHUSE everyone to become safety conscious. Enthusiasm is contagious. When top management is enthusiastic about safety this enthusiasm quickly spreads over the entire organization.

**F**IRE accident-prone employees. Better yet, check past records of prospective

employees and don't hire people who are accident prone. You will reduce your insurance rate and help protect your safe working employees.

**G**IVE safety awards with showmanship. Regardless of the extent of your safety award program, you can improve it in the way you make the presentation. Give your safety awards with a flourish.

**H**OLD regular safety meetings. When safety meetings are held regularly, everyone becomes safety-conscious as the meeting time nears. And, it stimulates safety meeting ideas to have to prepare something new and different for regular meetings.

**I**NVESTIGATE all accidents. Complete and careful accident investigation improves your safety program. Causes can be eliminated, your employees feel you have a sincere interest in their welfare, and during the investigation everyone is safety conscious.

**J**OIN safety organizations. Meeting with other local firms to discuss safety problems helps your safety program. Ideas picked up from other firms, even though in an unrelated business, can be modified and adopted to solve your safety problems.

**K**EEP your safety program in high gear. Putting emphasis on safety after an accident is natural, but the emphasis is already there in the minds of your employees. Keeping interest high at other times is more difficult, but it pays dividends by keeping the accident rate low or at zero.

**L**AY OUT all work areas to incorporate all safety factors. This will include location of equipment, routes of material handling equipment and safety color painting ideas to highlight potential accident areas.

**M**AIL safety information to your employee's homes. Your employee's families can be a big help in your safety program. Mail the safety news home so it will arrive and be discussed in the family group.

**N**AME key employees to a safety committee. This puts more people into the safety act and through committee action more and better ideas are developed to promote safety.

**O**VERCOME employee inertia to safety. If you have operated a long time without a serious lost time accident, your employees may be developing careless habits. Overcome this

safety inertia drastically to maintain your safety record.

**P**RAISE your safe workers in public. A presentation of safety awards before all of your employees makes the award more significant. Publicity of your safety records in local newspapers provides praise for everyone.

**Q**UESTION every accident statistic to see if some type of pattern develops. For instance, by questioning all details you may discover that certain work areas, certain age employees, or certain times of day produce the most accidents.

**R**EPORT all safety activities. Middlemanagement reports should go up to top management and down to the workers. Regular reports of safety ideas and promotions develop more safety-consciousness than occasional accident reports.

**S**TRESS safety everywhere. Use a safety insert in the pay envelopes. Display safety posters on employee bulletin boards. Mail safety news to homes. Place safety publicity in your local newspapers. Hold safety contests to keep your stress on safety.

*Continued on page 173*



**"YOU  
TELL  
ME  
YOUR  
VIEW**



Dear Editor:

I'M not too good with the big words and exact punctuation, but when it comes to car safety, I know quite a bit about this subject.

There is an old saying, a car is put together with 3000 nuts and bolts, but it takes only one nut behind the wheel to wreck it all. Thereby lies the real cause of today's accidents, lack of judgment of the driver. Higher speeds require quicker reflexes. More horsepower requires judgment in how to use it. . . . I took pilot training in World War II. I was 23 years old—I am 38 now and I guarantee you my reflexes are not as good now as they were then. I also wear

glasses which I did not need when I was 23.

I read an article some months ago where an intensive record was kept on cause of accidents and only 7 per cent were due to mechanical failures; which leaves 93 per cent due to error of the driver.

In Texas, the first thing that should be overhauled is the driver license law. I received my license in 1947 after taking a test. From then on I receive an application every

# **AND I'LL TELL YOU MINE"**

*Motor Vehicle Inspection has blown up a storm of opinion among some of our readers. It would be worth studying these comments. We could use yours, too*

two years saying my license is about to expire and I send in \$2.00 and receive another license without re-examination. I know people who have lost an eye; I know some who have lost a limb who are still renewing on their original application. I have customers who come in my shop who can't back out of the door. I have some who are so feeble I help them out of their cars, work on their cars and park their cars outside and head

them towards home and pray they make it. They wouldn't be safe in the safest car made—not even a Sherman Tank!

Now I don't mean every old person should be denied the right to drive. After all, you and I will be old some day too. But I do believe a person should be re-examined every five years. Also, there are thousands of people who are taking powerful drugs which affect both vision and reflexes. When I was flying, if we took a sulfa pill, we were grounded for three days. There are pills on the market now that people take and they don't even remember driving.

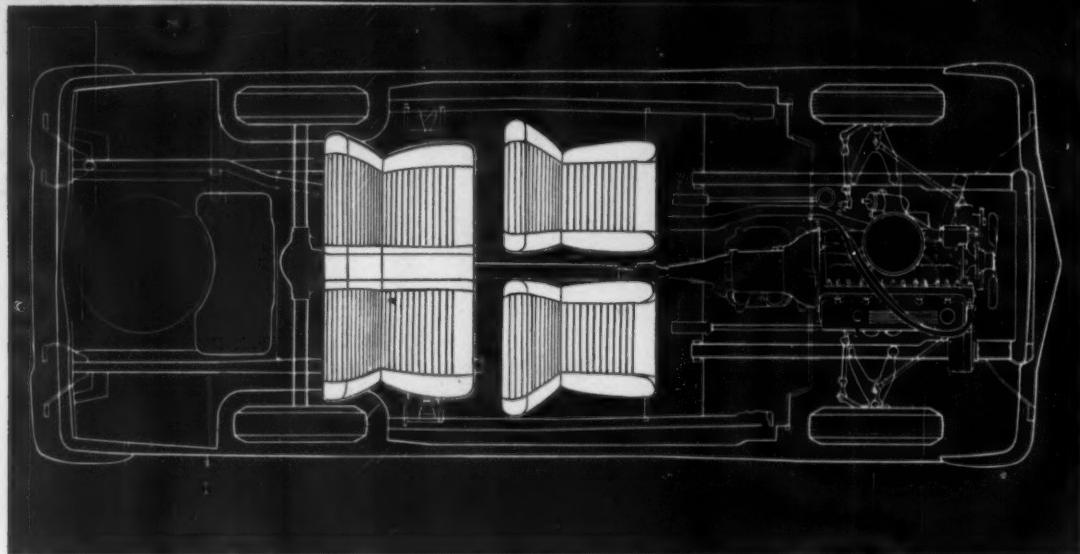
Another thing you see in Texas are signs—"If you drink, don't drive. If you drive, don't drink." If you want to enforce a law like that you would need patrolmen at every honky-tonk and as they stagger out and get behind the wheel, arrest them—which is quite impossible as the drunks outnumber the police about 330 to 1.

Texas law doesn't help in that respect either. You can't buy a mixed drink but you can buy a bottle and get ice for set ups, and who is going to quit when the bottle is still half full—so they finish it and get blind drunk. That is why the accident toll is so much higher on week-ends, especially Saturday nights. I have pulled a few of these from car wrecks who reeked so badly from alcohol that I would wake up with the hang-over the next morning.

If a law were passed where mixed drinks were permissible, a person would buy about 5-85¢ drinks (and I'll guarantee you the whiskey would be watered down) and it would cut down a lot of the drunks as the cost would be pretty high; whereas, they can buy a fifth of cheap whiskey for about the same price and get maybe 40 drinks.

Then, too, the car engineers could help safety very much. But they are school boys who think of styling instead of safety. The late model headlights are a poor thing. When they are on dimmers, you have two small

*Continued on page 128*



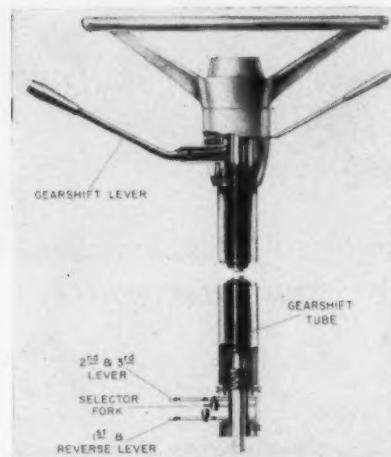
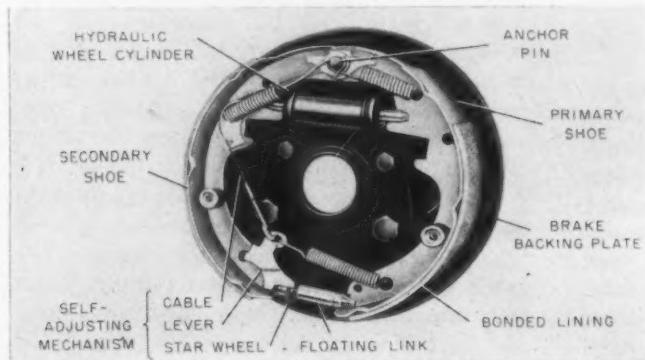
1962 Lancer Gran Turismo.

## CHRYSLER '62 a technical preview

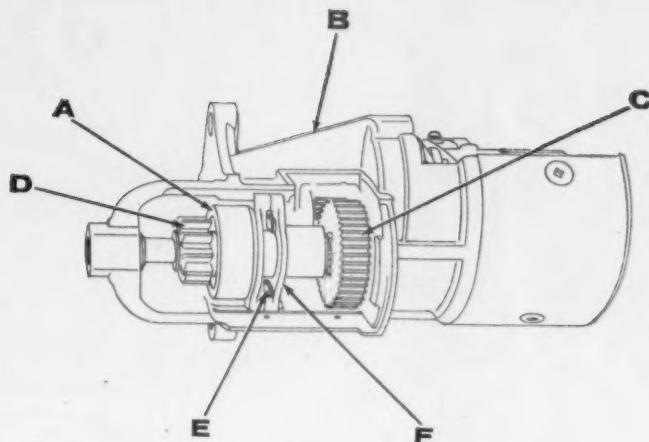
By Joseph Geschelin, Engineering Editor

*Motor Age presents "hot off the drawing board" round-up of Chrysler Corporation's 1962 engineering features*

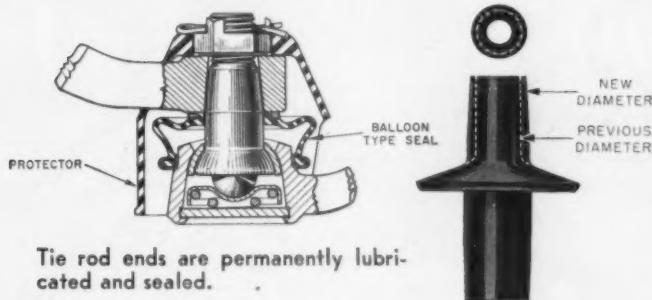
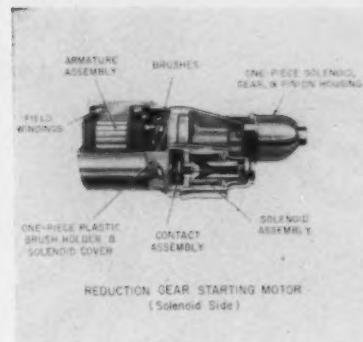
**Self-energizing feature of Servo Brake safely multiplies pedal effort.**



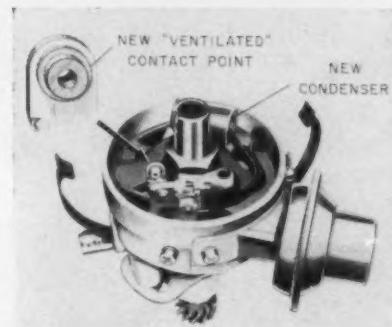
**Concentric Column Shift gives greater rigidity and reduces floor openings.**



Reduction gear in starter gives greater torque with less current drain on battery.



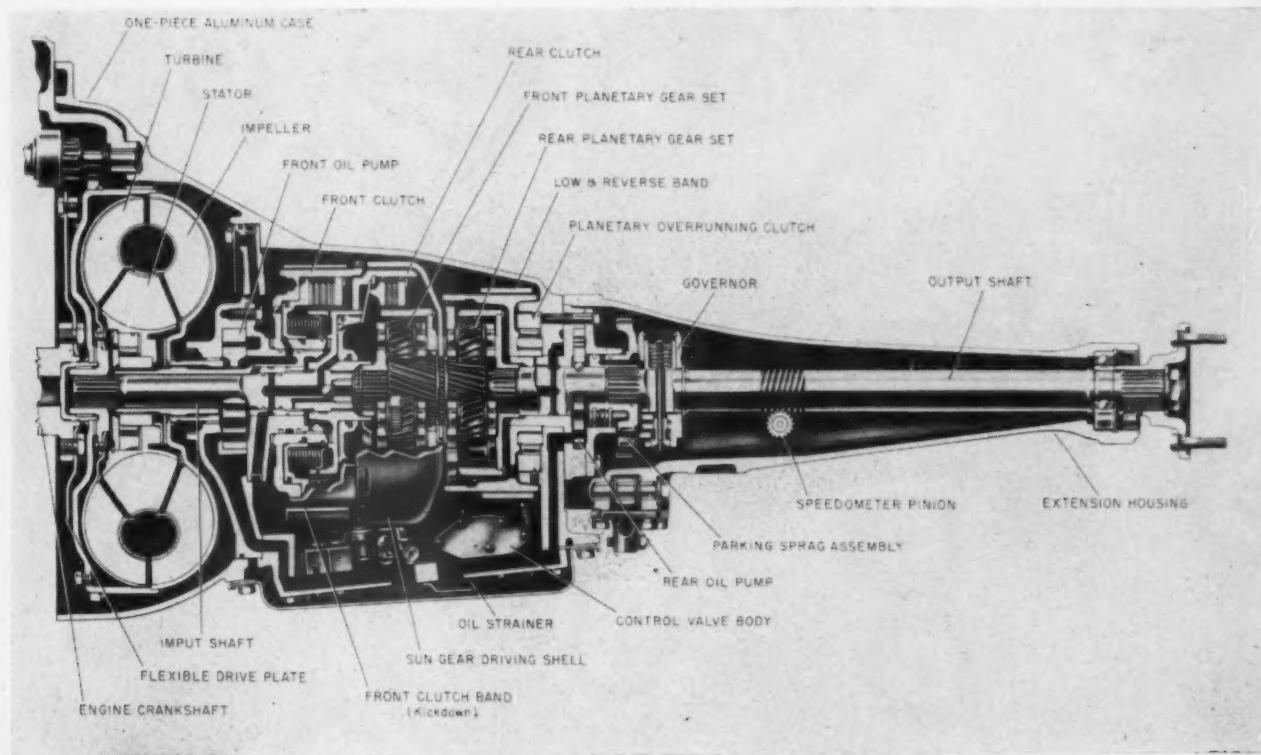
Tie rod ends are permanently lubricated and sealed.



#### IMPROVED DISTRIBUTOR COMPONENTS

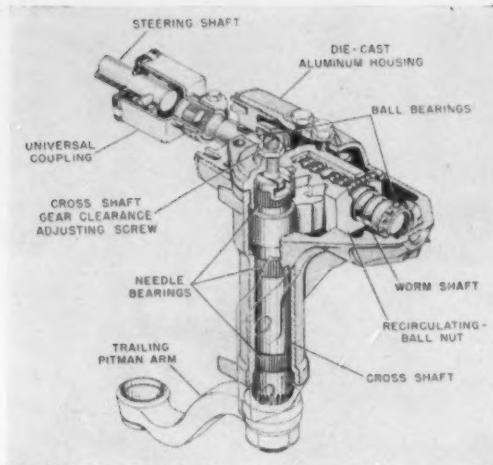
The six-cylinder distributor with die-cast housing and ventilated breaker points.

New light weight automatic transmission has a 10 per cent increase in capacity with a 60 pound reduction in weight.

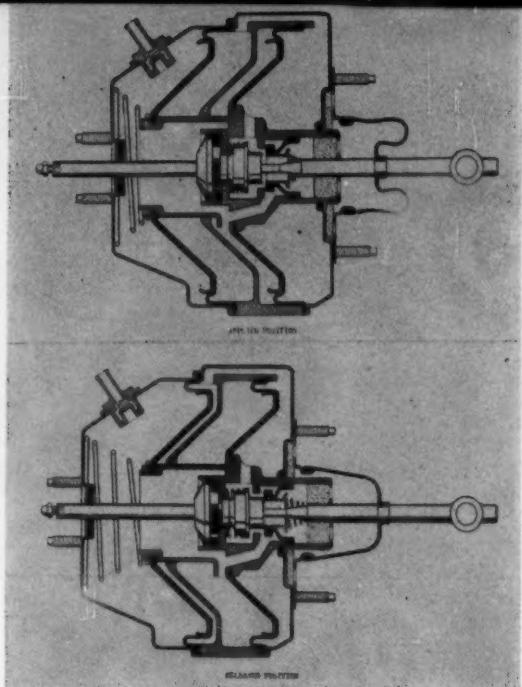


## Chrysler '62

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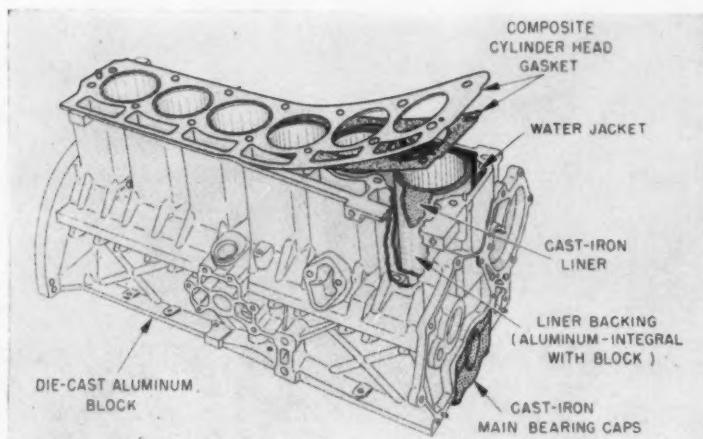
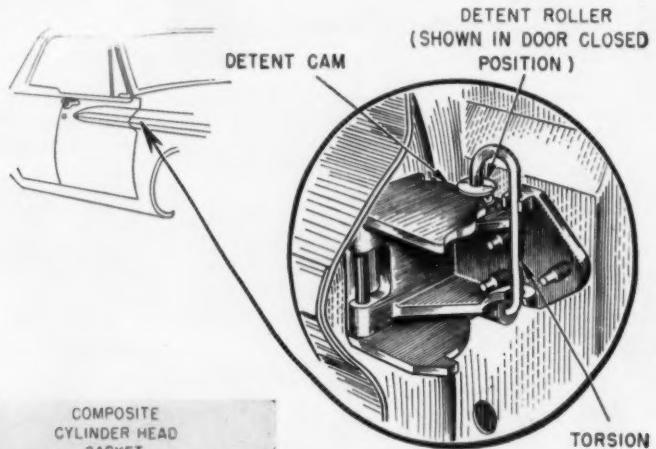


Manual steering gear uses recirculating balls and needle bearings to reduce steering effort.

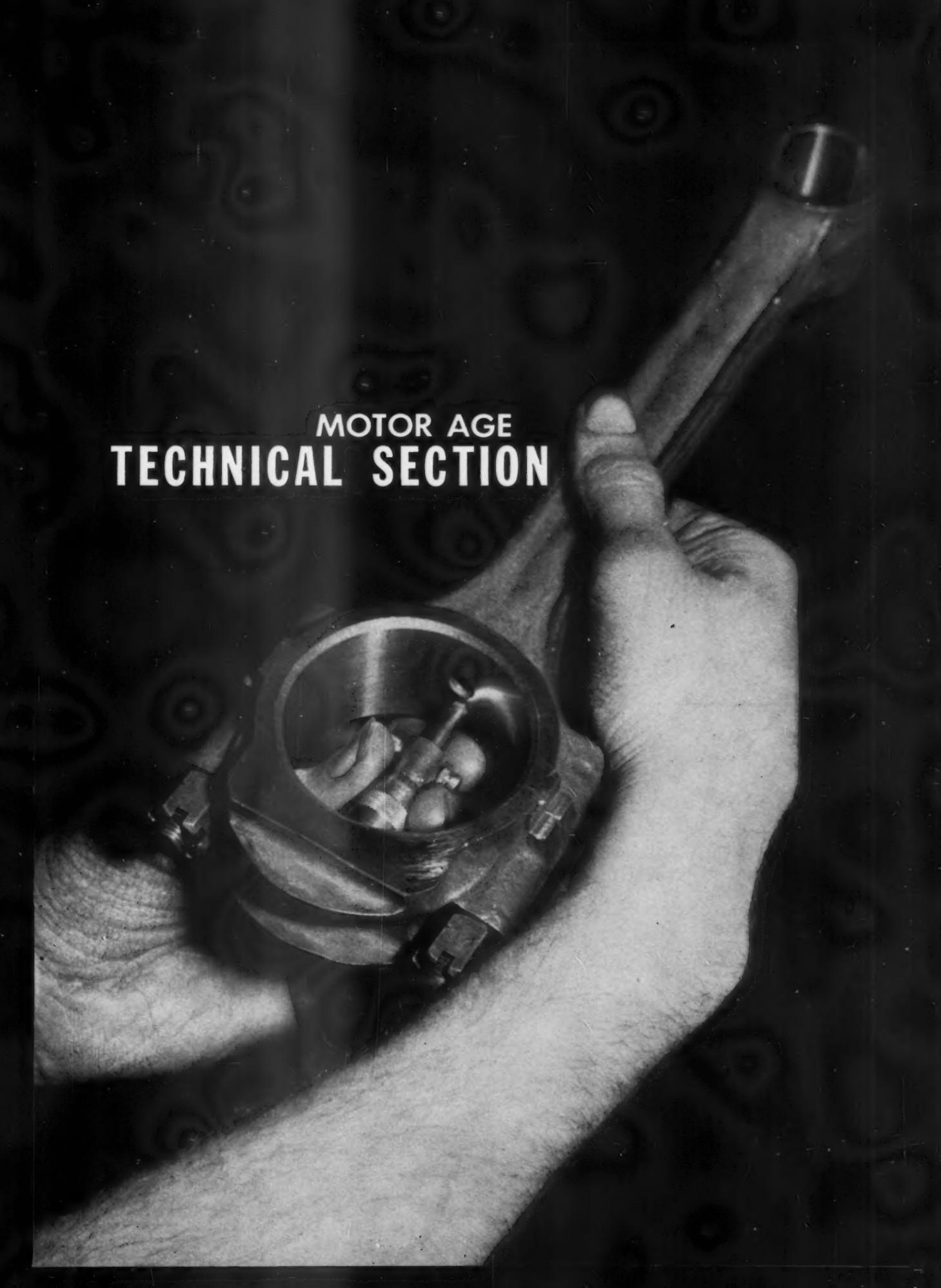


Improved Dodge Power Brake using two booster diaphragms in tandem.

Dodge torsion bar door checks reduce effort required to open doors.



Dodge Lancer series 225 cubic inch engine of die-cast aluminum with cast iron liners.



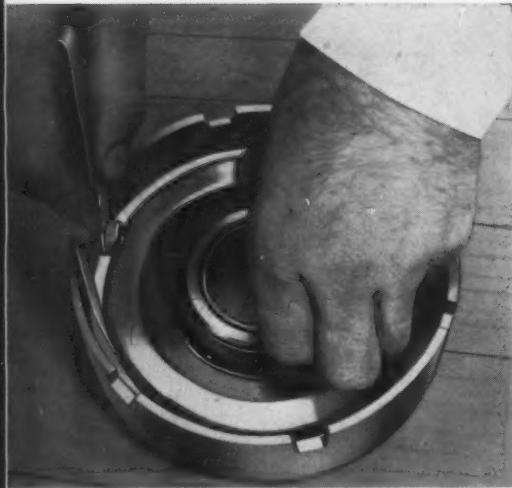
MOTOR AGE  
**TECHNICAL SECTION**

Service on the

# Powerglide Transmission

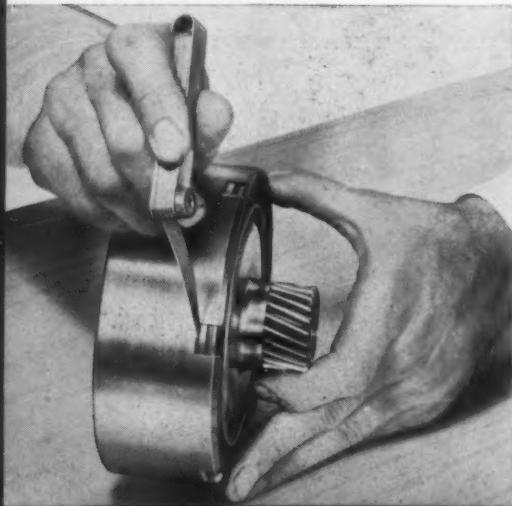
*Increase your know-how by carefully reading and studying this picture and caption presentation before you start to work on Powerglide transmissions*

By John K. Montgomery, Technical Editor



Carefully installing piston into clutch drum. Outer seal seating is being checked with a feeler gauge.

Checking clutch flange end-play—  
Maximum allowable end play .013 in.



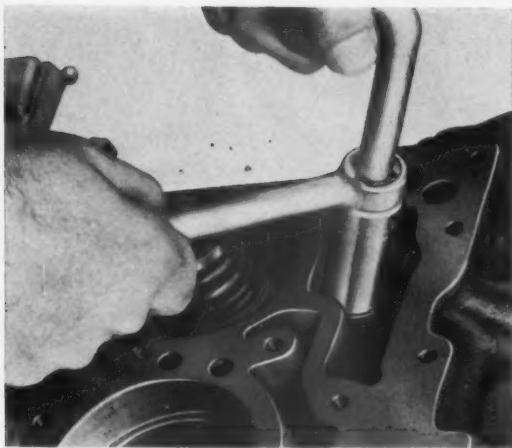
**S**TARTING with the 1953 models, a 3-element convertor replaces the former 5 element unit. Changes included waved clutch plates instead of dished as in previous models. Except for the 1958 models, they use dished steel plates.

#### Reverse Band Adjustment

Remove the vacuum line and the modulator, then remove the remaining servo cover bolt and carefully remove cover assembly. Release the reverse band adjusting screw lock nut and tighten the screw up snugly. Now back off the adjusting screw  $2\frac{3}{4}$  turns and tighten lock nut. On 1959 models tighten screw to 5 to 7 ft. lbs. and back off  $2\frac{1}{2}$  turns.

Correct procedure for installing clutch drum oil seal rings. Rings should turn freely in grooves.





Adjusting reverse servo. Tighten the screw and then back off  $2\frac{3}{4}$  turns.

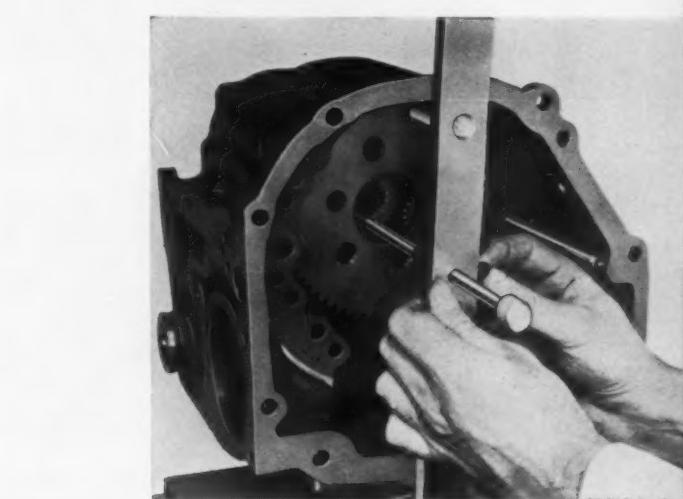
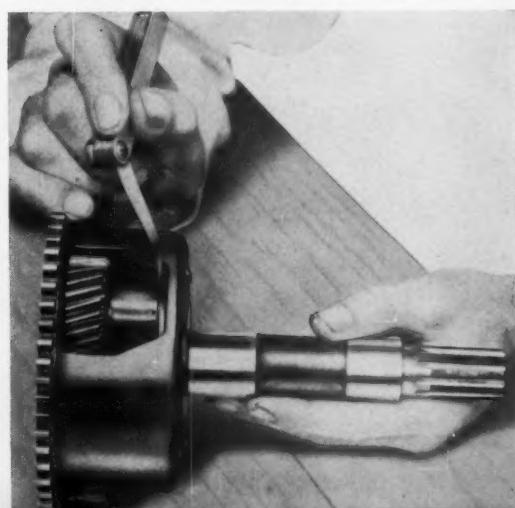
#### Low Band Adjustment

Remove protective cap on left side of transmission. Loosen the lock nut on the adjusting screw and turn the screw in snugly. Now back off the screw 4 complete turns and tighten lock nut.

It is possible to bend the manual valve inner lever unless the lever is positioned properly before removing the housing. To prevent this, the manual valve should be moved into the position that places it as far as possible into its bore. On the 1958-61 models this means placing the manual selector lever in "low" before separating the housing. On previous models, proper position was reverse.

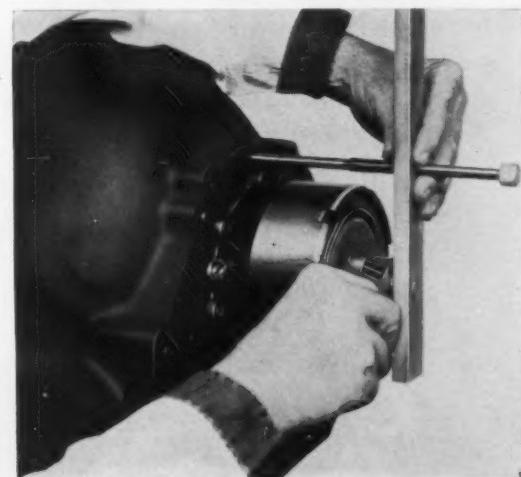
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End clearance of planet gears should be .006 to .030 inch. Clearance is controlled by thrust washers.



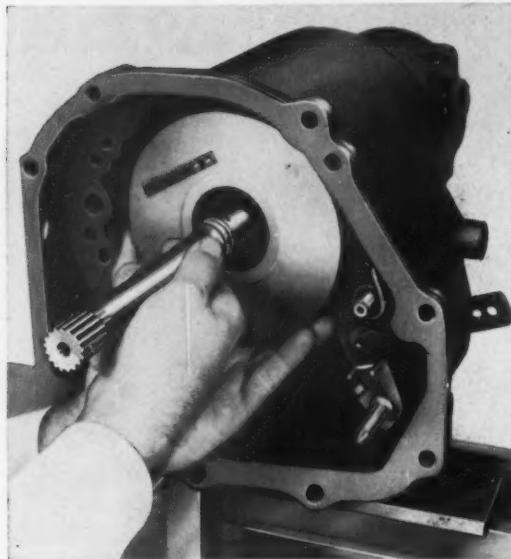
Measuring sun gear depth. Washers are furnished in .095 in., .120 in., and .145 in.

Checking for proper low to reverse sun gear clearance. Clearance should be .007 to .035 in.

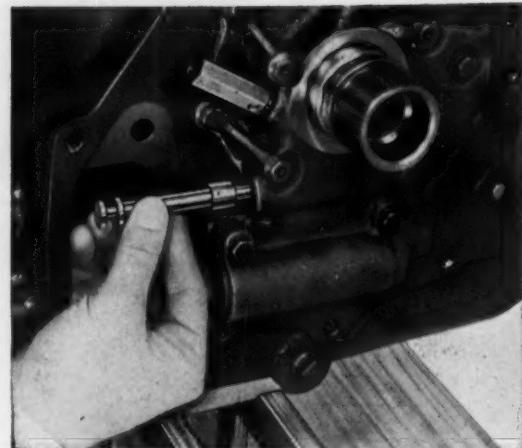


## Powerglide Transmission

**Continued . . .**



Insert unit assembly into case after indexing the shaft and gears.



Indexing manual valve with lever in turbine housing.



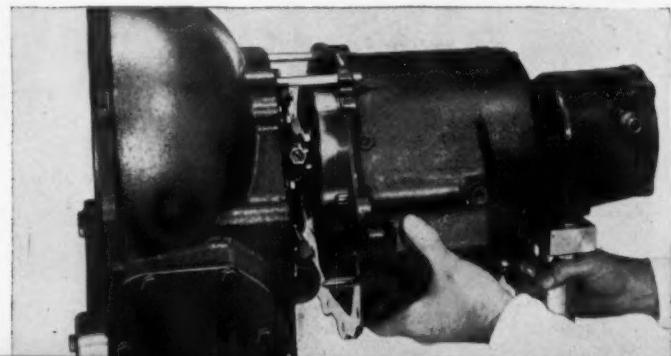
Front pump driver tool to remove front pump assembly from housing.

### Removing Modulator Assembly

Remove the servo cover assembly and gasket. Care should be taken when cover is removed to maintain pressure against this cover to eliminate possible cover breakage. Take out the reverse servo spring and remove the pressure regulator valve. Loosen low band adjusting screw lock nut and tighten low band

adjusting screw to hold the clutch assembly in place. Remove transmission to turbine housing bolts and carefully separate transmission from turbine housing. Remove manual valve from valve body and manual lever from turbine housing and also remove the bronze thrust washer from the valve delivery sleeve. Then remove the valve body and

*Continued on page 170*



Install guide pins. Carefully separate transmission from turbine housing.



Special wheel bearing grease packer.

Spread grease around bearings evenly.



## DON'T mix wheel bearing GREASE

*Grease is an excellent lubricant, but when mixed with a second, watch out!*

WHEN lubricating cars and it becomes necessary to take care of the wheel bearings, never mix wheel bearing grease. Always remove the bearings, wash and clean them, also the races and the inside of the hub very thoroughly. Most greases are an excellent lubricant by themselves, but when mixed with a second grease they completely disintegrate. Generally, grease is a mineral oil that is thickened with a soap material to help the oil stay put at the point of application. By varying the type of soap material in the binder a petroleum refiner is able to change the characteristics of greases for different applications. The grease in a wheel bearing is subject to considerable heat, being located in the center of the wheel hub and fully enclosed. It picks up much of the heat

*Continued on page 161*

This bearing is properly lubricated and ready for installation.



Typical "V" type cylinder cross-section showing how close the piston comes to the valve head.



## Analyzing a

# HOLE IN ONE

By Terrence J. McCabe, Feature Editor

*Today's high compression ratios and lack of proper tune-ups are punching holes in pistons*

**G**REATLY increased compression ratios have led to improved economy and performance in passenger car and truck engines. However, because of these extremely high compression ratios, various forms of abnormal combustion have become more troublesome in present day engines than in

their earlier counterparts. These in turn, have caused occasional failures of pistons, spark plugs and other engine parts.

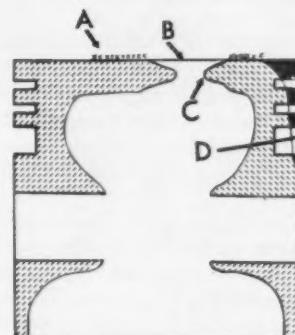
A close examination of the damaged parts often leads to the discovery of the primary source of trouble, and hence, enables the mechanic to correctly diagnose the cause of the condition.

There are many types of piston failures, but generally they can be classified into three groups:

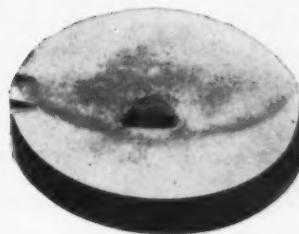
- a. Entrance of foreign material into combustion chamber
- b. Abnormal combustion
- c. Lubrication failure



Sketch and photo shows result of severe sustained detonation.

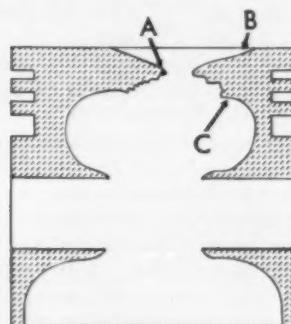


Damage to this piston crown was caused by a spark plug terminal nut dropping into the engine cylinder. Any foreign item must be removed.



High frequency vibrations can split the spark plug at the insulator and flex the ground electrode to the breaking point.

Diagram and photo indicate damage by excessive temperature resulting in pitting and burning of a hole in the piston crown.



Basically we are mainly concerned with the first two because the third, lubrication failure is very easily identified by every mechanic.

#### Foreign Matter:

The first condition of piston failure is the result of carelessness on the part of the operator or the mechanic. Such items of maintenance as the air cleaner or oil filter in frequent oil changes can seriously affect piston life when not given proper care. Air cleaners must be serviced regularly in order for the engine to breathe clean air. Any grit that isn't stopped by the air cleaner, will be sure

*Continued on page 164*

Combination failure of piston crown and lands caused by high thermal and detonation loads.



# Detroit Report...

## Small Car, Big Plans

The inside story of Ford Motor Co's strategy in bringing out its VW-size Cardinal reveals a more ambitious goal than anybody had imagined.

Officials at GM and Chrysler Corp. privately insist that most Americans don't want cars any smaller than the current compacts. That explains the so-called senior compacts that are coming out this fall.

But Ford has gone confidently ahead with its program. The low-priced, simply engineered Cardinal is being groomed to challenge Volkswagen as the No. 1 car in the world market, which has much greater potential for growth than the U.S. market.

Sales will be pushed harder in Europe, South America, Africa, Australia and Canada than in the U.S. The car will be shipped knocked down to some of these areas; in others it will be manufactured almost completely. Cardinals sold in the U.S. will be partially built in Detroit.

There has been considerable foot-dragging at GM and Chrysler about developing Volkswagen-type cars. Some officials at these companies still don't believe Ford will make the move. Nevertheless, both companies have developed prototype cars, and it's generally believed they could begin producing them a few months after the Cardinal goes into production—if demand were strong enough. American Motors, although sticking with its existing cars, is, like Ford, also moving energetically into the world market.

## Shock Comfort

The Briggs Shock Absorber people are telling all motorists how to enjoy a safer, smoother ride. Use Briggs Imperial Adjustable Shock Absorbers. The adjustable feature means they can be adjusted to the different needs of motorists.

## Fuel Injection?

This is a hush-hush item. A strong report says that one—just one—1962 car will introduce an optional fuel-injection engine. This will make two—Chevy's Corvette

sports car, of course, already offers optional fuel injection.

Three years ago fuel injection flopped badly. It was too costly, demand lagged, and performance was disappointing.

## New Car Beauty



Unsightly holes and dents in cars will disappear with Duratite Auto-Marine Plastic Filler. Remove rust and clean the metal to bare surface with sandpaper. Then fill in the cavity with Plastic Filler, smooth out with a power or hand sander, prime and touch up with paint for an invisible repair job. Lo and behold—car beauty and dollar trade-in value goes up!

## Aluminum Bumpers

On a field-test basis, Pontiac will equip 5,000 of its cars with aluminum bumpers for '62. Insiders report that aluminum suppliers have agreed to provide the bumpers cheaply in exchange for the right to advertise the news that they actually are being used on production cars.

Creditable reports say the bumpers' will be used on air-conditioned Pontiacs, where the 25-30 pound weight saving would be most beneficial.

## Tail Dragging?

Stop rear bumpers and tailpipes from scraping on driveways. Monroe Super Load Leveler stabilizing units compensate for the added weight of passengers and luggage... will keep cars riding their level best under all road and load conditions. By keeping cars level, they hold headlight beams on the road and out of the eyes of oncoming motorists. Monroe offers a 60-day free ride plan to guarantee complete satisfaction.

## Poor Man's Power Seat

One automobile manufacturer has ordered 10,000 low-priced, manually operated seat adjusters for 1962. This do-it-yourself unit will permit the driver to tilt the front seat forward or backward hydraulically, by pumping a handle. Naturally, the seat will slide backward and forward, too.

## Protect Car \$88

Money that motorists invest in cars can be protected through the use of quality Kendall Dual Action or Kendall Super B Motor Oil. Engines will operate smoother and quieter. This quality protection assures less wear... helps reduce

## Gus Wilson's

*A regularly monthly feature  
of Popular Science*

How has Gus Wilson managed to stay single all these years? Nobody knows. But he comes perilously close to losing his freedom when he's exposed to the ample charms of Nora Simpson, a pretty widow with red hair, plenty of money, and a roving eye that roves in the direction of the ruggedly handsome proprietor of the Model Garage.

And that's not Gus's only prob-  
POPULAR SCIENCE READERS

the need for repairs and keeps up the value of the money invested in automobiles.

## More Power

Automobile owners will get more power, easier starts and better gas mileage with a can of Gumout in the gas tank. Besides cleaning automobile carburetors, it will clean the carburetors of boat motors and power mowers—help all engines give peak performance.

## Bits and Pieces

Volkswageners can now buy a factory-rebuilt engine at savings up to 43 per cent of a new one....

Although Ford deliberately avoided using an aluminum engine,

# from Popular Science

## Monthly

355 Lexington Avenue, New York 17, New York

it is showing considerable interest in aluminum body panels. A good possibility for the future is an aluminum roof. However, aluminum is losing favor in the auto industry. Best example is Buick's coming V-6 cast-iron engine. There is a growing belief that aluminum can do a fine job in certain applications, but that it's been oversold for some jobs that it's not capable of doing....

A long-range plan under study by GM envisions much greater interchangeability of components among its five car divisions for engines, transmissions, drive shafts, and differentials. Buick, which has

## Model Garage



lem this month: that fire-eater, Fire Chief Maloney, actually accuses Gus of charging him for a repair job that didn't need doing!

With a fine display of fancy footwork, Gus hangs onto single blessedness and his untarnished reputation as an honest businessman. See "Gus Makes a Fast Get-away" in September P.S.

ARE YOUR BEST CUSTOMERS

plenty of manufacturing space, might become the "power-train" division, producing engines and other components for all divisions except Chevrolet.

### Off-On Fan

One car maker is developing a new type of liquid cooling system for a small car that would eliminate the large fan and radiator in front of the engine. It would be replaced by a small radiator and an electric-motor-driven fan that would operate only part of the time. It could be located in some out-of-the-way spot.

While admitting that all the cooling-system problems have not been solved, and engineer in the program

pointed out that this fan would operate only "on need." Most cooling fans, he said, operate more than necessary—reason for the increased popularity of variable-speed fans, which rotate much more slowly at high vehicle speeds.

### Wankel Engine Fires Up

A trade source reports that Curtiss-Wright will begin marketing its line of rotating combustion engines early next year with a two-rotor, 70-hp. marine engine.

This will be followed shortly by a three-rotor, 105-hp. unit and a four-rotor, 140-hp. engine. These are also for marine use. Reportedly, they will weigh about 2.4 pounds per horsepower and will be priced somewhat below present marine power plants.

Industrial and tractor engines will follow the marine units. Contrary to reports, the lubricant for these engines will not be added to the fuel.

### And What's NEW For 1963?

Look for alternators on the new 1963 cars of Ford Motor Company and General Motors. Despite reports that Ford's acquisition of the two Electric Autolite plants was the most important factor in this decision, both Ford and GM have had their own alternators developed for some time.

### Weight Costs Gas

A study recently made by the auto industry has measured the effect upon fuel consumption of the number of passengers in a car, and has come up with the following results: A 2,550-pound Comet got gas mileage of 22.7 miles per gallon with one passenger in the car, 22.2 with two passengers, 21.7 with three passengers, 21.2 with four passengers, 20.7 with five passengers, and 20.2 with six passengers. This was typical when the test-car was driven in city-suburban areas.

A product planner can increase mileage of a 2,500-pound car in city-suburban driving by a tenth of a mile per gallon for each 25 pounds of weight he removes.

### Leading Advertisers Appearing In The September Issue Of POPULAR SCIENCE

Monroe Auto Equipment  
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Shock Absorbers  
Kendall Refining Company  
Motor Oil  
Firestone Tire & Rubber  
Company  
Truck Tires  
Champion Spark Plugs  
Spark Plugs  
Harley Davidson Motor  
Company  
Motorcycle—Motor Scooters  
The Armstrong Rubber  
Company  
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Cushman Motors  
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Perfect Circle  
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AC Spark Plug Division  
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American Honda Motor  
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Motorcraft Division  
Ford Motor Company  
Autolite Spark Plugs

### AMERICA'S FOREMOST AUTOMOTIVE MARKET



ON SALE—  
AT YOUR NEWSSTAND

# TIPS FOR THE BODY SHOP

## Use Epoxy Resin To Fasten Grille Cups

I have a tip on replacing '59 Chevrolet grill cups. Sometimes the ears on the cups get broken off—I take and fill the cup with epoxy resin and put a  $\frac{1}{4}$  in. bolt in it, wait until the bonds are hard, then bolt it to the grill. *Justin D. Tieri, 628 Parkside, N.W., Grand Rapids, Michigan.*

## A Good Tool For Removing Door Handles

After trying numerous types of hook devices to remove door handles on late model Studebakers and General Motors cars we came up with this tool. Use a scrap piece of  $\frac{1}{16}$  metal strap 1 in. wide and approximately 6 in. long. File out one end  $\frac{1}{2}$  in. wide and 1 in. deep. The clips are then pushed out instead of pulling them out. We hope this will be as useful to other shops as it is to ours. *Carl Voss, Mgr., A-B Motor Co., 3040 St. Catherine St., Natchez, Mississippi.*

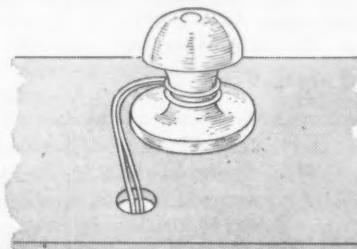
## Ground Car To Water Pipe While Spray Painting

My tip is one which every car painter can use to get a cleaner, dust free paint job. Every car has a certain amount of static electricity which creates a magnetic field above the surface of the car. The momentum of this magnetic field which pulls dust

onto the entire surface of the car is increased with every pound of air from the gun. Most of this free floating dust in the air would never be attracted to the car if it weren't for this static electric magnetism. To overcome this problem, I soldered two clamps on both ends of a small electric wire which I connect one end on the car frame and the other end to a water pipe. Thus grounding the car. *Wayne Zumwalt, 2084 South Prospect, Porterville, California.*

## Piece Of Wire Pulls Rubber Grommets In Place

A method of installing any type of rubber bumper or grom-



met that is held in place by forcing the rubber through a hole is to loop a wire around the narrow part of the grommet, push both ends down through the hole where the grommet is to fit and give a substantial pull. The wire can then be removed by pulling on one strand. *Tom Peterson, 415—17th St., West Babylon, New York.*

## How To Get More Mileage Out Of Sanding Disks

We use a number of portable sanders around the shop for work on wood bodies of station wagons, and to extend the life of the sanding belts, they're dunked in water and the dirt and glue brushed off with a stiff-bristled brush. After this cleaning, the belts are again dunked quickly and then set up in the proper shape to dry. A belt so treated, quickly regains its former flexibility. *Joseph's Auto Service, Box 22, Gardenville, Pennsylvania.*

## Piece Of Masking Tape Prevents Clogging Nozzle

Especially when spraying quick-drying paints, if you lay the gun aside for more than a minute or so, the nozzle gets partly clogged and may mar the paint job when the spray gun is again used. Prevent this by pressing a small piece of masking tape over the nozzle between uses of the gun. This keeps the paint from drying in the orifice. *E. Mayover, 1601—14th St., W., (U.S. 41), Bradenton, Florida.*

## BODY SHOP TIPS

are worth

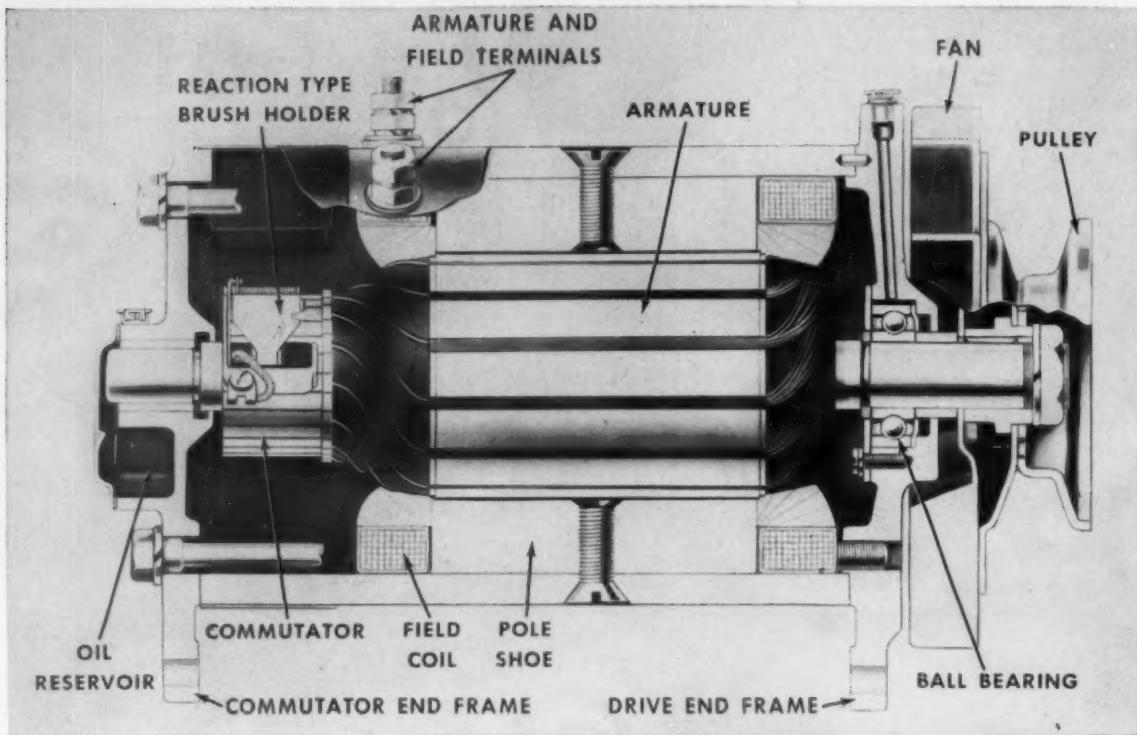
# \$10.00

If you've developed an idea that has helped you to do body and fender work or painting better or faster, it may be worth money. Jot down the idea and, if necessary, make a rough sketch. Sometimes a snapshot will help. Just make the description of your BODY SHOP TIP clear, and if it is used, you'll receive a check for \$10.00.

# MOTOR AGE MECHANIC TRAINING PROGRAM



MOTOR AGE'S training program will cover all phases of the automotive vehicle. After our coverage of Basic Electricity, the Editors will move on into the Internal Combustion Engine. Basic theory of operation will be designed to expose the reader to both the Gasoline and the Diesel engine. Then we will offer a course on Basic Chassis, including in that series Front End Alignment. Body Shop fundamentals will be followed by a return to Advanced Electricity with additional advanced coverage of every subject. A Certificate of Completion will be issued after the basic courses and another for the advanced.



A typical automotive generator showing most of the components. Notice the small space between the armature and the pole shoes, this is called the air gap or magnetic bridge.

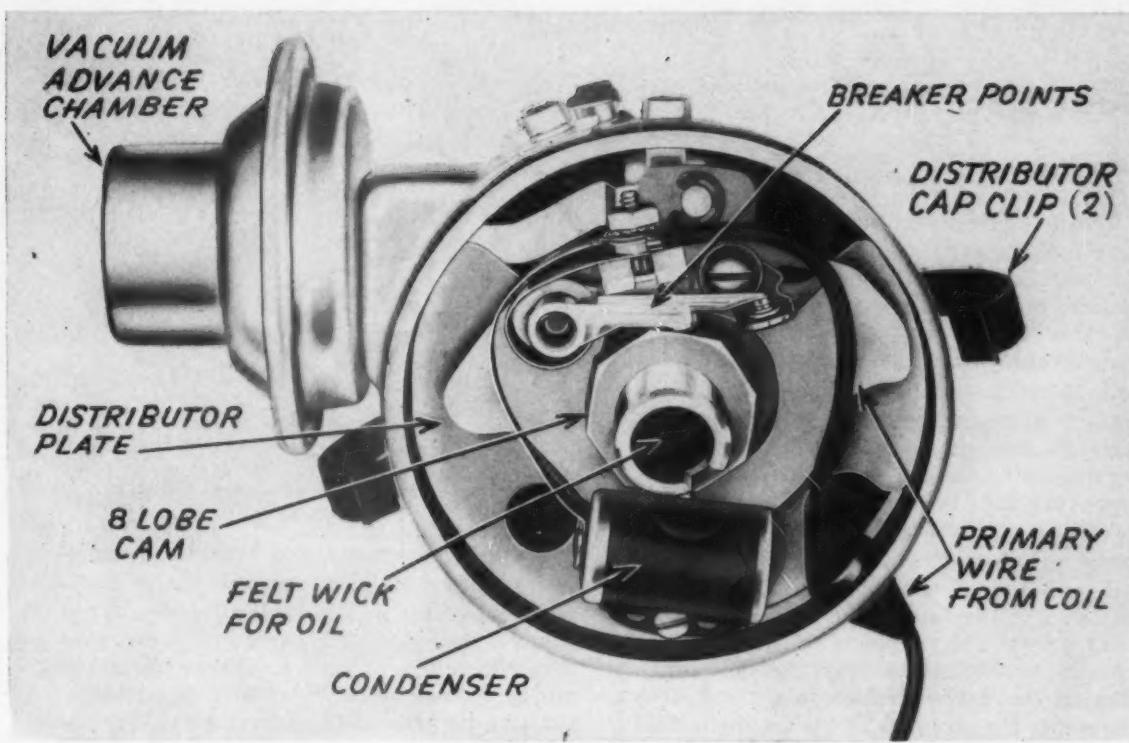
## Part III

# BASIC ELECTRICITY

*This month's subject is Electro-Magnetic Induction as applied to the Generator and the Ignition Coil*

THE automotive electric generator is a machine that is used to convert mechanical energy into electrical energy. Referring to last month's course you will find that in the study of *Electromagnetic Induction*, moving a wire through a magnetic field would produce an induced electric current in the moving wire. This is exactly what a generator does, it moves many wires through a magnetic field to induce current in the many wires located in the generator armature.

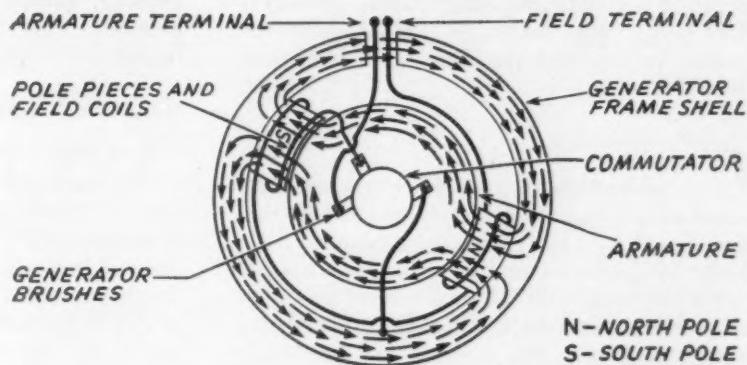
A generator is made up of four main elements. First: the generator field frame or



Automotive ignition breaker assembly for an eight cylinder engine. Centrifugal advance weights under distributor plate not shown.

**Review of Test I  
found on page 132**

housing, then the armature, field coils, and finally the commutator and brush rigging assembly. The field frame or housing forms the main house in which all other generator components are stored. The frame acts as a conductor for the magnetic fields that move throughout the generator. The field coils and soft steel pole pieces are secured to the inside of the frame shell. Attached to the armature shaft at one end is the pressed on commutator. The commutator is a series of mica insulated copper bar segments pressed into a drum shaped assembly, this unit is then



The path of magnetic lines of force in a two pole generator are shown above. Magnetic lines of force always flow from North to South.

pressed onto the armature shaft and insulated from the shaft. Attached to each copper bar of the commutator is a coil of wire in the armature. The current induced in each armature coil is collected from each commutator copper bar by carbon brushes in contact with the bars as the armature rotates.

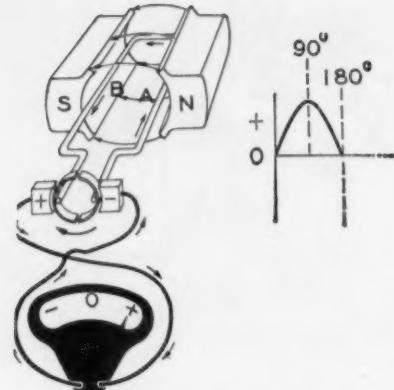
*Continued on next page*

## Basic Electricity . . . . . III

The pole pieces secured to the frame shell have the field coils wound around them. The soft steel pole pieces have a small amount of residual magnetism always retained by them. It is this residual magnetism like a permanent magnet only with a very light flux or magnetic field that supplies the excitation for the turning armature coils. When the fan belt turns the generator armature just after starting the engine, the armature coils begin to cut these very light lines of force. The cutting of these lines of force by the armature coils induces an alternating current (AC) in each coil that cuts the magnetic flux. This action induces a voltage across the brushes of about 1 to  $1\frac{1}{2}$  volts. The voltage is sufficient to cause a small current to flow from the field brush through the field windings to ground, thus increasing the strength of the magnetic field through which the armature turns. This current and voltage builds up until it closes the cutout points and the generator will then charge the battery.

### Commutation

The alternating current in the armature must be changed to direct current (DC) before it can be used to charge a battery. This is the job of the commutator and brushes. Because the commutator bars are connected to the loop of the armature coils, both parts will rotate as a unit. The brushes are stationary and ride against the commutator bars. In rotating the loop of wire through 360 degrees, note from our illustrations, that the current in section "A" is flowing away from us and the current in section "B" will flow toward us at the 90 degree mark. This current from the loop of wire will travel through the brush marked positive, through the meter, and return to the loop through the negative brush. At the 270 degree mark, the induced current will flow through the positive brush, to the meter, and return to the loop through the negative brush. Therefore, we can see that although the polarity is always changing in the



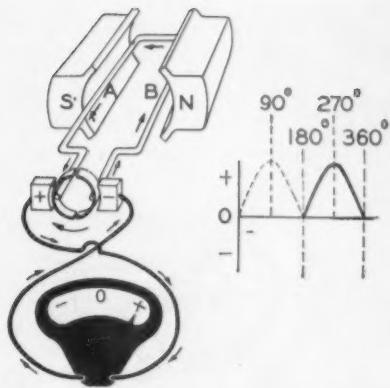
The current flow in section "A" is flowing away from us and towards us in section "B". See text under commutation for detailed explanation.

loop, the commutator and brushes mechanically switch this current flow so that it is always traveling in the same direction. This changes the alternating current to direct current which can be used to charge the automobile storage battery. Actually, a commutator with its brushes is in effect a rotating reversing switch, automatically resulting in production of direct current by mechanical means.

### Generator cut-out relay:

Just as a water pump needs a check valve to prevent drain back of water from the pump suction, so the generator needs a check valve to prevent the drain back of current from the battery through the generator. The electrical check valve in the generator circuit is called a reverse current relay, circuit breaker or cut-out relay. Its full time job is to connect the generator to the battery automatically when the voltage of the generator is sufficient to charge the battery. It also comes into action to disconnect the battery from the generator when the engine stops turning the generator. It also disconnects the two when the voltage of the generator drops below that of the battery even though the generator is still being turned by the engine. This is the condition you would have with the engine at idle speed. Without a

*Continued on page 77*



The above sketch is a graphic explanation of current commutation in the generator. See text on opposite page for detailed description.

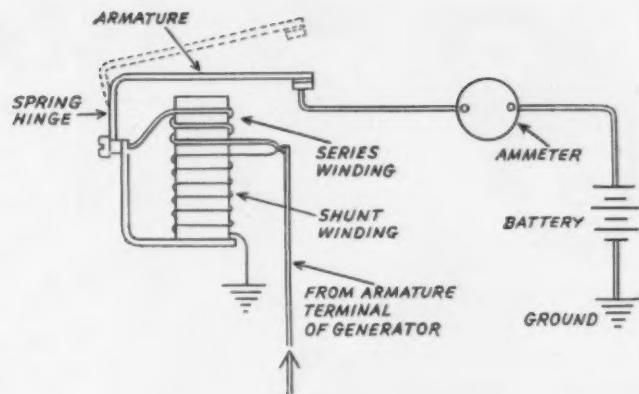
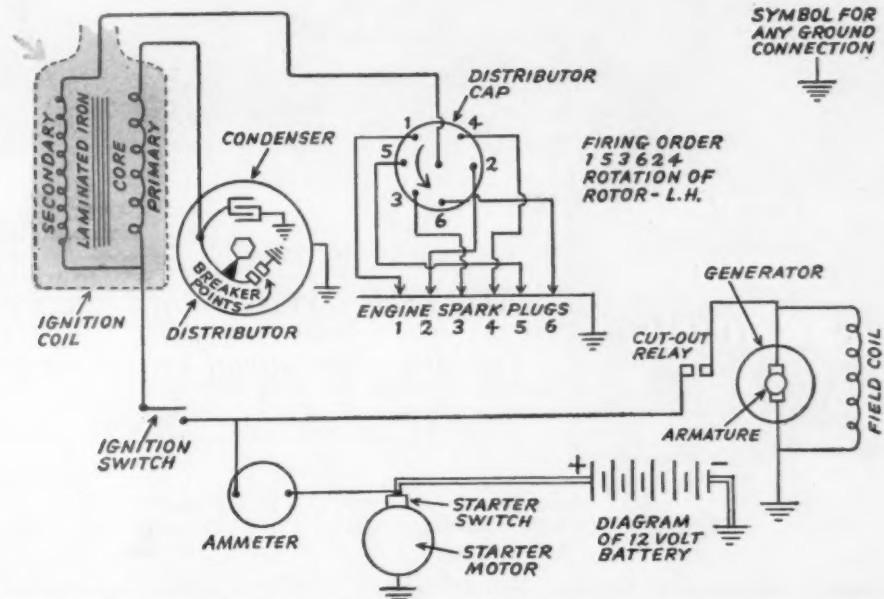
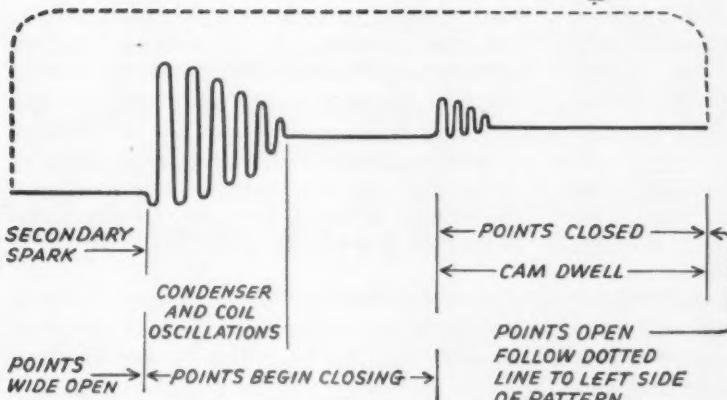


Diagram of generator reverse current relay wiring system in automotive charging circuit.

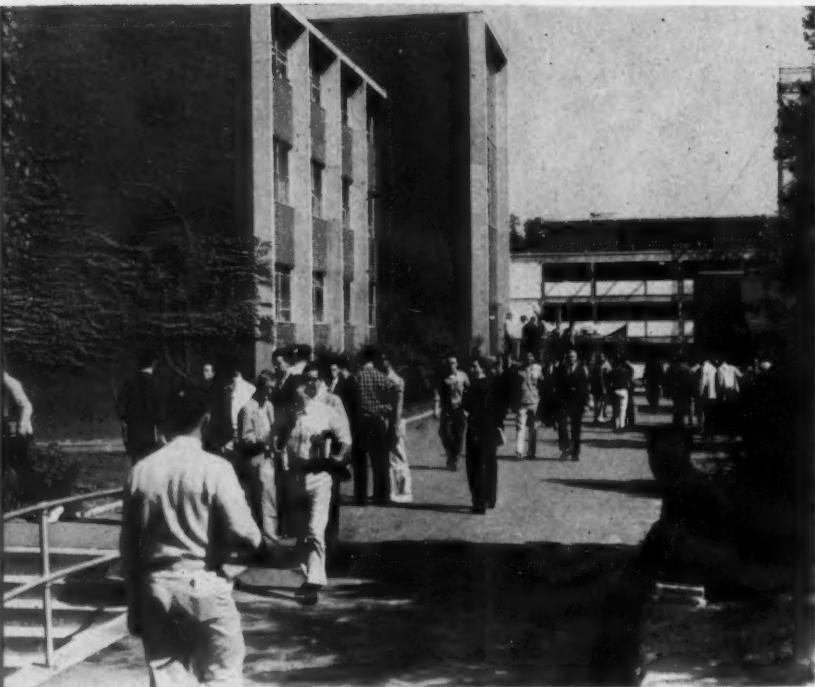


Typical twelve volt battery type ignition system including the basic generator wiring diagram is shown above.



Oscilloscope pattern of a condenser oscillation from peak voltage to zero voltage.

## Service Training Schools



*MOTOR AGE's continuing list of factory sponsored training programs and field service schools*

**Bendix Automotive Service, South Bend, Indiana** offers training through schools sponsored by authorized Bendix Distributors on Power Brakes, Hydraulic Brakes, Wheel Brakes, Power Steering, Stromberg Carburetors, Zenith Carburetors and Zenith LP Fuel Systems.

The schools provide both service and sales training for automotive service and sales personnel. School subjects for each product line include theory, operation, overhaul, specifications, service analysis, use of service literature, and basic sales training.

The length of an individual course is one to two full days depending on the product and

the type of training. Classes are scheduled by each distributor to meet local needs. No tuition fee is charged. In addition, factory schools are conducted for Instructor personnel who are responsible for scheduling and handling training programs for servicemen.

Additional information may be obtained by contacting a Bendix Distributor or writing to the Bendix Training Director, Bendix Automotive Service, South Bend, Indiana.

**Carter Carburetor Power Center Training Programs** are always in continuous operation handling training programs for servicemen.

*Continued on page 182*

Please Print:

## MOTOR AGE Mechanics Training Course

NAME \_\_\_\_\_ DATE \_\_\_\_\_

COMPANY \_\_\_\_\_ POSITION \_\_\_\_\_

STREET \_\_\_\_\_ CITY \_\_\_\_\_ STATE \_\_\_\_\_

### BASIC ELECTRICITY

Test III

1. The term applied to the magnetic force always present in the generator pole pieces is:  
 a. Electro-motive force     b. Current flow     c. Residual magnetism
  
2. What is the type of current produced in the armature coils before commutation?  
 a. Free current     b. Alternating current     c. Direct current
  
3. A generator is a machine for converting:  
 a. Mechanical energy to motion     b. Mechanical energy to electrical  
 c. Electrical energy to mechanical
  
4. Another name applied to a condenser is:  
 a. Capacitor     b. Transformer     c. Coil
  
5. What is the induced voltage per turn of the secondary winding in the ignition coil?  
 a. 21,000 volts     b. 12 volts     c. 1 volt
  
6. Which of the following is actually responsible for the induced voltage in the secondary winding of the ignition coil:  
 a. Primary magnetic field collapse     b. Secondary magnetic field collapse  
 c. Condenser capacity
  
7. The generator commutator with its brush rigging is actually a:  
 a. Field current regulator     b. Automatic polarity reversing switch  
 c. Automatic static eliminator
  
8. The electron collector foil plates of a condenser are made of:  
 a. Thin wax treated paper     b. Layers of fibre glass  
 c. Aluminum or lead foil
  
9. Another name for the cut-out is:  
 a. Reverse current relay     b. Polarity reversing switch     c. Overload relay
  
10. Duties of the generator circuit breaker is to:  
 a. Disconnect the engine from the generator     b. Connect the battery to the generator  
 c. Disconnect the armature from the fields

\* *Comments to the Editors:*

CUT OUT PAGE ALONG THIS LINE—SEE OTHER SIDE FOR INSTRUCTIONS

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*Answer the questions. Cut out and fold firmly along dotted lines and return promptly to the Editors of MOTOR AGE, postage free. It is not necessary to tape or seal envelope after folding.*

*Test will be graded and notification of your score will be mailed to you. Upon completion of entire mechanic training course, you will be awarded the MOTOR AGE Certificate of Completion.*

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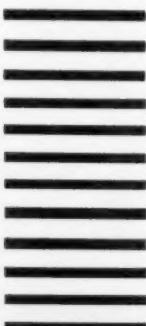
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## Basic Electricity III . . . . . Continued from page 72

circuit breaker which worked automatically, the battery would drain down through the generator windings to ground in a short period.

### Circuit Breaker Operation:

A cut-out relay consists of two wire coils. One coil is called a series coil or winding (always the heavy wire size) and the other is the shunt winding (always the small size wire). Both coils of wire are wound around a single core. This coil assembly is placed in a frame with a spring loaded armature plate above it. Mounted on the armature plate is an electrical contact point and opposite it the other contact point; (see illustration). The series winding (heavy wire) consists of only a few turns and is in series (in the line) between the generator and the battery. The shunt winding (fine size wire) is made up of a large number of turns and it is wired across the generator; that is, it shunts a very small amount of current from the generator to the ground (metal shell or frame of car).

When the generator voltage is below that of the battery, the strength of the magnetic field produced in the coils isn't strong enough to overcome the spring pull on the armature plate so the points will remain open. No current can flow to or from the battery because of the open circuit. Just as soon as the generator speed increases, the generator armature then cuts more magnetic lines per second. This produces a greater voltage at the fields which gives a stronger magnetic flux and thus a higher voltage output at the armature terminal (large terminal) of the generator. This voltage is impressed in the series coil of the cut-out and the shunt coil. The shunt coil is connected to ground and thus is a closed circuit so current will flow. The amount of current is very small

because of the high resistance of the coil. It builds up a magnetic field which pulls the armature plate down closing the contacts and thus causes the current from the generator to flow to the battery.

The series coil then exerts an additional force to keep the armature down and the points closed. When the generator voltage drops below that required to charge the battery, the battery current then tries to flow back through the cut-out points to the generator. When this happens, the current reversing in the series coil (heavy winding) causes the magnetic poles of the coil to change. This cancels out the effect of the shunt coil thus decreasing the total strength of the magnetic field which would hold the armature plate down. The decreasing strength of the magnetic field allows the armature spring to open the contacts. The open contact causes an open circuit preventing the battery current from draining to the generator.

### The Ignition Coil:

The ignition coil, as used in the automobile, is a very high voltage producing device. The voltage produced is at times over 20,000 volts. The current produced is very small in the range of about 7 milliamperes. A millampere is .001 of an ampere (one thousandth of one ampere). The ignition coil or induction coil produces this high voltage output by Electromagnetic Induction (see last months course). However, induced amperage can at times run very high. When tests have been made with the coil wire disconnected and not grounded, peak currents at the test meter have shown 25-80 amperes for a very small fraction of a second. This type of coil operation can cause a breakdown in the coil insulation because of the high voltage and amperage built up.

Now this is a good place to calm any fears that a young mechanic

might have of being electrocuted by the ignition coil. The 20,000 volt figure might scare the bejabbers out of most newcomers. However, it isn't the high voltage that kills people. The sustained high amperage is the thing that kills em. Take the case of house wiring voltage; the voltage is 110-115, amperage about 30, yet it knocks em deader than a dried cod fish. Of course, a mechanic with a bad ticker (heart) might knock-off real easy after a jolt, but then he might also go off if you said boo to him. To get used to the spark plug shock, take a little of it at a time, it won't hurt you in itself; it's the banging of your head on the open hood that really hurts.

### Coil Construction:

Ignition coils are made of about 21,000 turns of No. 38 copper wire for the secondary and 240 turns of No. 20 copper wire for the primary. The secondary is wound around and insulated from the laminated iron core. Then the primary is wound around the secondary because the primary carries the heavier current and thus it would be close to the container surface for cooling. The current from the ignition switch is applied to one side of the primary winding (low voltage). The other end of the primary is connected to the breaker points. Current is passed through the primary winding when the points are closed. The current flowing (at 6 or 12 volts) produces a magnetic field around the secondary (fine wire 21,000 turns). When the breaker points are opened by the distributor cam, the primary circuit is broken and the current stops flowing. The instant the points break, the magnetic field begins collapsing across the fine wires of the secondary winding and a very high voltage is generated in the secondary coil.

Going back a moment to last months lesson, when a wire is passed through a magnetic field a current and voltage is generated

Continued on page 128



Cities Service Photo

*Crusade for Salesmen . . .*

# The Man in the Gray Flannel Overalls

**C**ompetition has moved in with Death and Taxes as one of the few things of which you can be sure. But, unlike the other two certainties, this one should be welcome because (although it may ultimately bring on the other two) it makes for a good, healthy economy.

However, it also creates some problems, because no matter what it is that you are selling, there is usually someone down the street selling the same thing—and probably for less money. And so, if you want to succeed in your business—in fact, if you hope to survive—you are going to have to stop waiting for your customer to buy from you, and begin selling to him.

Actually, as a service station salesman, you have one distinct advantage over salesmen in other fields because when you are selling your customer one item (such as gas) you have a chance to see his whole automobile. The druggist doesn't get a look at his customer's medicine cabinet when he sells a bottle of aspirin, nor does the haberdasher see his customer's entire wardrobe when he sells him a pair of socks or a necktie. They can't point out his needs because they don't know what they are.

You have all your customer's automotive problems right in front of you when you raise his hood or open his gas cap and it would be silly not to take advantage of what amounts to an exclusive opportunity.

In a surprising number of cases, your total selling effort would consist of merely pointing

*Service like any other commodity, has to be sold. So no matter how you describe your job, if you are in the service business, you have to be a salesman*

By H. David Leslie,  
Managing Editor

out an obvious defect or reminding the owner of something that he already knows that he needs. People rarely buy unless they are asked. But, they do react favorably to seemingly well-meant suggestions, particularly if they don't have the feeling that they are being "pressured."

Unfortunately, your whole job isn't quite as simple as this, and in getting the plus business which will make all the difference, there is no substitute for "Salesmanship."

Your number one job consists of convincing the prospect that he needs something, and more importantly, that the item that you are selling is exactly the one that he needs. How you go about convincing him will depend pretty much on what you are selling. But, in the field of automotive items, Safety is a very powerful word. Comfort and Economy can be almost as persuasive and these three reasons alone can help you sell a lot of merchandise.

One person, who sounds very knowledgeable, said "The American Salesman, wholly unlike his kind in other countries, never has been a mere order-taker. He has raised America's standard of living because he has always been a promoter. The American Salesman is a merchant, not a storekeeper."

There is a big difference between a Merchant and a Storekeeper—almost as big a difference as there is between success and failure. A Storekeeper lets things happen—a Merchant makes things happen. It is important that you have the things that people need, but it is more important that you make them realize that they need them.

Smooth tires, bad brakes, broken shocks, burned-out headlights, dead batteries, weak springs, loud mufflers, and body squeaks, are usually very obvious and don't require a lot of conversation to bring to your customer's attention. But the latest "permanent" anti-freeze, or a cooling system rust resistor, or a "hotter" spark plug may take a little selling.

Happily, in most cases, you have some high-powered national advertising going for you. But, this advertising merely tells people that these items are being sold—it doesn't necessarily tell them that you are selling them. Also, it isn't always convincing enough to make them feel that they really need the item. Basically, all any kind of advertising can do is get people to or in your front door.

*Continued on page 158*

# MERCHANDISING and PROMOTION



E. I. Du Pont de Nemours & Co., Wilmington, Dela. advertising its free replacement offer to motorist if "Telar" anti-freeze and summer coolant changes color. Company also announced a price reduction from \$5 per gallon to \$3.95, suggested retail price; year-round rust prevention with a Color-Check safeguard; and winter anti-freeze protection. Replacement offer certificates, to be given to motorist when "Telar" is installed, explain that the anti-freeze and summer coolant contains a patented Color-Check inhibitor, designed to protect cooling systems against rust and corrosion. Dealers will get a supply of the replacement offer certificates in their point-of-sale display kits. These kits are available from Du Pont anti-freeze distributors.



Vaco Products Co., Chicago, Ill., is introducing two super counter screwdriver display promotions. The "Reversible Assortment" display contains 24 assorted drivers. The "Phillips Assortment" display contains 48 assorted drivers. Each display features prices, sizes, construction and other vital information for quick, self-service buying.

The AP Parts Corp., Toledo, Ohio has a new sales aid folder available. Over 40 sales boosters for dealers and wholesalers are included. They cover everything from a lead pencil to heavy duty muffler gun, company states. These sales boosters are illustrated and explained in the 1961 sales aid folder. The folder has helpful hints on how wholesalers may tie-in with the company's national trade and consumer promotion programs.



**Grizzly Brake Division, Chicago, Ill.** has an attractive, die-cut "brake in" card. Card details the research and engineering which goes into every Grizzly brake lining to provide the quality, safety and dependability, company states. The card points out the proper procedure to follow in breaking in new brakes; procedures that should be followed in order to get maximum life and performance. It is designed for easy attachment to customer's steering wheel. This brake-in card is available thru company distributors.

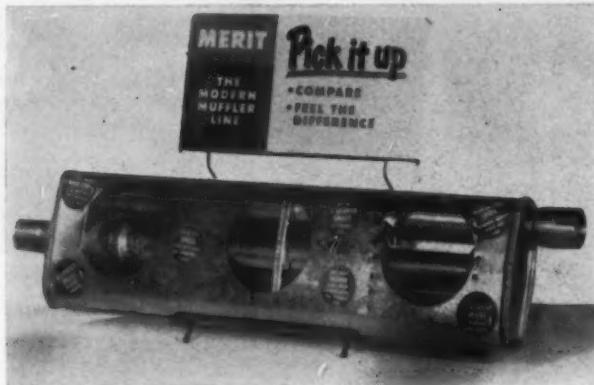
**AC Spark Plug Division of General Motors Corp., Flint, Mich.** provides a lamp rack that is a colorful sales display and has ample space to store more than 300 AC-Guide miniature lamps. The miniature lamp rack is 13 inches high by 16 inches wide. It can be used as a shelf display or conveniently hung as a wall display. Dealers can get the rack by ordering the AC-Guide GLM-93 Merchandising Package. Package includes the rack, an assortment of 150 miniature lamps and a new AC-Guide specification chart.

**Wayne Metalcraft Division, E. Edelmann & Co., Chicago, Ill.** announces a new, "do-it-yourself" pressure radiator cap tester. Unit is designed for in-store use by customers. It shows whether customers' caps are still functioning properly. Company reports the tester lets customers sell themselves replacement caps 7 times out of every 10 tested. Tester measures 17 inches high, 10 inches wide and 14 inches deep. It requires less than one square foot of floor or counter space. Unit is of metal construction.

*Continued on next page*



## Merchandising and Promotion



**Merit Muffler Division, Toledo, Ohio** is showing a muffler cutaway model. Model shows the longer-wear features on the interior as well as the exterior, company states. A cutaway model is now available to wholesalers. An attractive muffler counter display rack which invites customers to examine the Merit cutaway is also available. The display rack holds either a regular cutaway or the new flat oval Fiberglass muffler. A colorful eight-inch by sixteen-inch header sign urges customers to "Pick it up and feel the difference."

**Hygrade Products Division of Standard Motor Products, Inc., Long Island City, N.Y.** has made available a 20 x 30 inch easel-back floor display of carburetor tune-up Jiffy kits. The display is available to distributors. This colorful display is silk-screened in four colors. It has a large illustration of a Jiffy Kit and also shows the kit's individual parts. The heading reads, "Just the parts you need ... All in ONE package!"

**Columbus Parts Corp., Toledo, Ohio** offers 90 day free trial on shock absorbers. Company dealers can offer this free trial on a complete set

of four new Columbus Shocks. According to the company, if the customer is not completely satisfied, the dealer can replace the old shocks or give a full refund. The company will then reimburse the dealer for all four shocks and add \$4.00 for labor charge. A free sheet is supplied explaining the program in detail. A replacement claim card and a giant dealer poster to advertise the program are also supplied. These can be obtained through company wholesalers, a Columbus salesman or writing direct to the company.

**National Brake Block Corp., Woodside, N.Y.**, has prepared a series of advertising mats for use by service stations and repair shops in their local newspapers. The initial group includes mats of three types: One is specifically for use during Spring or Fall checkup time. A second has been designed for use weekly or monthly as a continuing advertising program and the third features special price promotions. This last, company claims, is ideal for use during slack business periods. The mats are two newspaper columns in width and six inches deep. Space is provided for including the name of the service facility using the ad.

**NOW HAVE YOUR BRAKES RELINED BY OUR SKILLED MECHANICS FOR ONLY \$50.00**

If you make an appointment during the next ten days!

For cushioned stops we install top quality friction-controlled linings by NATIONAL BRAKE BLOCK.

Previously inferior friction and especially bonded on true steel substrates, these long-wearing premium linings will give you safe, smooth stops every time. They are guaranteed to prevent most brake failure caused by worn linings. Installation guaranteed!

YOUR NAME AND ADDRESS

**Drive in today for your FREE SPRING BRAKE INSPECTION!**

Stop your brakes safely for the driving you'll do at the end of the inspection! It takes very little time to get expert advice from your local dealer.

• Modern Testing Methods  
• Low Cost Adjustment  
• Expert Service, and

TOP QUALITY FRICTION CONTROLLED LININGS BY NATIONAL BRAKE BLOCK

These premium linings are perfectly suited, precisely fitted to steel wheel substrates for long wear and gentle stopping.

YOUR NAME & ADDRESS

**Before you start, be sure you can STOP**

FOR SAFE DRIVING ASK US FOR A FREE BRAKE INSPECTION

We provide:

- Expert service
- Modern testing methods
- Low-cost adjustment
- Expert Service, and

TOP QUALITY FRICTION CONTROLLED LININGS BY NATIONAL BRAKE BLOCK

Stop your brakes safely for the driving you'll do at the end of the inspection! It takes very little time to get expert advice from your local dealer.

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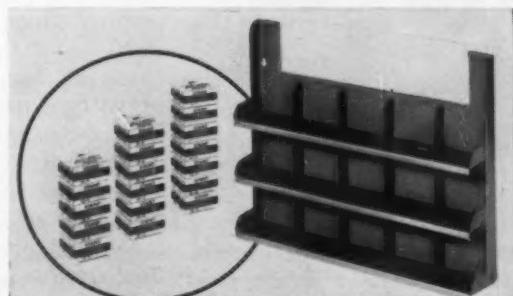
TOP QUALITY FRICTION CONTROLLED LININGS BY NATIONAL BRAKE BLOCK

These premium linings are perfectly suited, precisely fitted to steel wheel substrates for long wear and gentle stopping.

YOUR NAME & ADDRESS

**United Delco Division of General Motors, Detroit, Mich.** has a new Dial-A-Battery display. It makes the selection of the right type Delco Battery for a customer's particular driving needs very simple. Easy-to-use movable dial enables retailers to "feed in" specific factors that determine their customers' battery requirements. Recommended type battery automatically appears in window. It is available nationally thru United Delco suppliers.

**Stant Manufacturing Co., Inc., Connersville, Ind.** is offering a special promotion July-September. It is aimed to better equip stations and garages for proper merchandising of its automotive closures. Until September 30, the jobber is being authorized to offer his customers a special bargain. With 18 Lev-R-Vent Safety Type Pressure Cap Assortment SP-605 at regular prices, they get free this Add-On Unit. The combination of the MU-600 Wall Merchandiser with this new Add-On Unit on which it hangs, enables the station to show all of the Stant caps, gasoline, locking, oil filler, radiator, safety type and compact car closures.





## New Products Shopping Center

### Valve Seat Cutter

*Said to provide a perfect valve seat in five turns*

**Neway Sales, Incorporated:** A valve seat cutter has been designed to provide accurate valve seat, company states. The tool was originally designed and developed for the racing car field, but since has been found to be ideal for most all small engine repair, company points out. The cutting head and hand ground Tungsten Carbide blades of the valve seat cutter have been precision tooled to provide a near perfect valve seat. Permanent angle of the cutting blades assures an accurate valve seat and in much less time. Another feature to be stressed with this tool is that there is no grinding dust.



*Write: Neway Sales, Inc. Corunna, Michigan.*

### Air-Jack

*Provides protective perch for chrome bumpers*

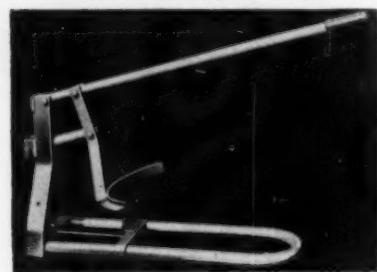
**Big Four Industries, Inc.:** With its inch-thick rubber cushions, Big Four's new 505 Bumper Jack protects chrome finishes. The bumper pads are a full ten inches wide to distribute the load and to avoid bending the current thinner bumpers. Saddle arms



expand to grip bumpers or bumper supports on all the new cars. Inside the power cylinder, the piston has a self-sealing neoprene type packing which automatically compensates for wear and is easily replaceable. A nylon wear ring prevents metal-to-metal contact of piston with cylinder wall. Write: *Big Four Industries, Inc., Maineville, Ohio.*

### Bead Breaker

*Handles all sizes of passenger car and light truck tires*



**Rocklen, Inc.:** A manually operated bead breaker that "pops" the tires bead down on the toughest rims, has been introduced. "Lever Ease," it is claimed, handles all sizes of passenger car and light truck tires, conventional or tubeless and foreign car rims with or without center holes. Uses compound lever action to exert greater force. It is portable and does not require the use of a compressor or electricity. Write: *Rocklen Inc., Products Division, West Haven 16, Connecticut.*

### Lock-Nut Wrench

*Designed to turn gas gauge lock-nut*

**Watonna Tool Company:** A new wrench designed to turn the

lock-nut which mounts the gas gauge on late model Chrysler, Desoto, Dodge and Plymouth automobiles is announced. The



new wrench, No. 517, does the job quickly and without damage to parts, it is said. It is drop forged from high-grade alloy steel, and heat-treated for extra long life. Write: Owatonna Tool Co., 321 Cedar St., Owatonna, Minnesota.

#### Bonded Brake Shoes

*Designed for power brakes and other heavy-duty applications*

**National Brake Block Company:** Announced, are grooved, friction-combination bonded brake shoe sets for heavy-duty and power brake applications. These



bonded shoes, it is claimed, give better braking performance because each axle set is engineered with two high-friction and two low-friction segments. The important groove insures better lining-to-drum contact and more effective heat dissipation, resulting in cooler operation. Write: Wm. Simon, Sales Manager, Dept. M.A., National Brake Block Co., 37-17 57th St., Woodside 77, N.Y.

#### Front End Lift

*Eliminates dangerous turn-arounds on highways*

**E. F. Wegener Company:** According to the company, the Wreck-Master front end service lift is designed to make wrecker service more efficient. Now wrecker can drive up, hook on and move out. The lift is said to eliminate dangerous turn-arounds on busy highways. Simply drive up, hook on and lift to make fast tire changes. Then install rear wheel dollies or push



car off the highway onto safety zone. It is said to lift all passenger cars with ease. It can be installed on all power operated, electric or hand operated wreckers. Write: E. F. Wegener Co., Lawrence Harbor, N.J., or 'phone Lowell 6-4697.

#### Body Filler

*Color-coding controls speed of hardening*

**Ditzler Color Division of Pittsburgh Plate Glass Company:** A new body filler that uses color-coding to control the speed of hardening has been announced. A color and hardness selector on the container lid eliminates guess work in application. The speed of hardening is selected by adding either red or black cream hardness until it matches the desired color on the speed indicator. The new product, to be known as "DX-666 Ditz-Flex

"Body Filler" is a full flex filler that is easily filed. It spreads and



works easily with a minimum of dusting or grinding. Write: Ditzler Color Division, Pittsburgh Plate Glass Co., 8000 W. Chicago Ave., Detroit 4, Michigan.

#### Voltage Regulator Safety Fuse

*Fits practically any car*

**Guaranteed Parts Company, Inc.** Recently introduced is a Voltage Regulator Safety Fuse that fits practically any car, old or new, company states. It works like a household fuse; breaking the circuit if the current flow exceeds safe limits. The new fuse protects the regulator, the generator, the battery and the charging system wiring from dangerous overloading. The new fuses are available in an assortment for service stations and garages in a dispenser measuring 17" × 9" ×



2". For convenience, the dispenser has an easel back for use on counters or it can be hung on the wall. Write: Guaranteed Parts Co., Inc., Dept. VF, Seneca Falls, N.Y.



Sell the customer on early installation of anti-freeze and a thorough cooling system checkup to insure safe driving this winter.



Check tires for wear and sell either new snow tires or set of chains or both to customers to ensure customer's preparation for snow.

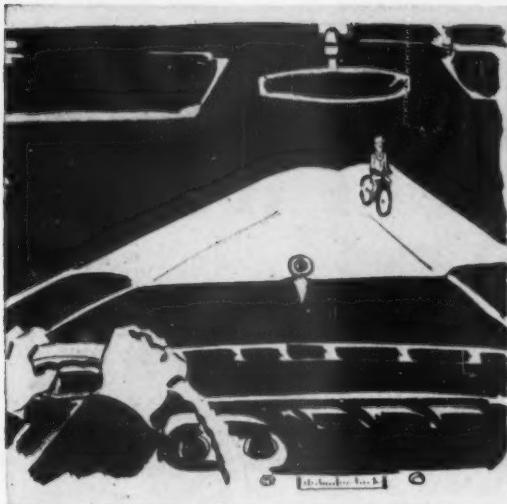
## Prepare your WINTER MERCHANDISING program now

*Service stations and garages should promote their winterizing promotions now to get the jump on winter's first snow and panic buying*

By William M. Montgomery, News Editor

**S**NOW, icy billowing winds are pelting Main Street in a typical town in the Northeastern Section of the United States. Panic grips the hearts of the downtown shoppers, store owners and office workers. "It's too early in the season for this snow storm!" screams a panic stricken housewife. "I've got to get home." "The weatherman really goofed on this one" mutter many distraught citizens as they rush out doors to have anti-freeze installed and chains put on at the service stations.

They were sorry now that they had forgot-



**Examine headlights, tail-lights and turn signals. Replace lamps and bulbs that are burned out. Make winter night driving safe.**



**Winter is hard on batteries. Check battery cells and casing for cracks and leaks. Look cables over. Replace battery if inadequate.**

ten to winterize. When they slithered across the street to their "friendly service station," an anything but "friendly atmosphere greeted them. The scene was pandemonium. Surely nothing short of the threat of an atom bomb could cause such panic.

Cars were parked in every direction at entrances. Motorists were either huddled forlornly inside their cars or were trudging aimlessly around the station waiting for someone to winterize their car. The service station attendants, mustering every reserve of strength and will power, battled valiantly to cope with the situation, even if it looked completely hopeless.

One irate motorist who had waited over an hour finally left his warm car, trudged thru the snow and admonished the attendant for being so slow in getting around to his car. When his turn came, he sheepishly admitted that he guessed he had been slow getting around to having anti-freeze installed, new battery installed and windshield wiper blades replaced. He desperately needed all these things done now! You could see the attendant's blood pressure mounting. All these things could have been done weeks or months earlier, he thought, but these guys always

#### Promote Early Sale of Winterizing Items

Anti-freeze, Sealants	Starters
Hose, Clamps	Oil, Air & Gas Filters
Fan Belts	Winter Grade Oil
Radiator Filler Caps	Brake Fluid
Thermostats	Cylinder Cups
Chains, Snow Tires	Lining, Springs, Hose
Windshield Wipers	Tie Rod Ends
Washer Anti-freeze	Support Arms
Sealed beams & Bulbs	Coil Springs
Turn Signals	Bushings
Defrosters	Shock Absorbers
Batteries, Cables	Springs, Mufflers
Spark Plugs, Points	Tail Pipes
Distributor Caps	Universal Joints
Generators	Polish & Cleaners
Voltage Regulators	Floor Mats

leave things go until the last minute. Then they want everything done at once! Why didn't I try to get them to take care of these things sooner? All this confusion could have been avoided. But maybe these customers aren't entirely to blame. I should  
*Continued on page 168*

# Grease the Ways to PROFIT

*61.5 million cars need regular lubrication in the coming months. Periodic lubrication pays in many ways*



Cooperation is the bond that builds big things. In this instance, the National Lubricating Grease Institute developed the symbol reproduced on this month's MOTOR AGE cover. With this group's permission, the Automotive Lift Institute is working jointly to help you. Behind the symbol is a widespread public relation program to convince the public that cars should be put on a lift every thousand miles. Lend your support to these programs for, while you're helping your customers, you will discover profit opportunities for yourself.

Frank P. Tighe, Editor



OVER 99 per cent of the cars on the road today must be lubricated regularly. Cars need these services periodically for efficient, economical performance. Then, too, car owners appreciate the offer to inspect their tires, fan belts, wipers and other visible key parts for their safety and comfort.

Get your customers in the "Every-1000-Miles-on-the-Lift Habit" for vital lubrication and inspection services that mean extra business and profits for you. Service is what you have to sell and nothing can close the sale so easily as showing a customer what he needs. To show him what he needs, you have to get the car up on a lift.

Start today to tie in with national sales programs designed by industry to educate your

customers into bringing their cars to you for lift service and chassis lubrications. This program has a symbol—shown on this month's cover of MOTOR AGE. The program of customer education was initiated by the National Lubricating Grease Institute, whose General Manager is T. W. H. Miller, 4638 J. C. Nichols Parkway, Kansas City 12, Mo. This group is spearheading an organization that will put all its weight behind a program of getting your customers in the "Every-1000-Miles-on-the-Lift Habit." They will stress to your customers by consumer media that there are dozens of other places on a car that require periodic lubrication service. Here are just a few of the more important ones:

*Continued on page 160*

# Give your business a LIFT

*Automotive Lift Institute  
has developed a profit-in-  
your-pocket plan to help  
educate your customers*

TERMINOUS changes in car design have been introduced in recent years; changes which have resulted in wide diversity among the various makes of automobiles. These changes in some cases have been gradual, in others spontaneous. Cars are lower now than ever before. Most of them use the Mono-weld frameless type of construction where jacking points are most critical. The use of torsion bars and tapered rear spring leafs will appear more and more. The tapered leaf spring will be new this year in the Chevrolet.

All of these advanced systems require a very flexible lifting technique for safe, quick, economical service on all vehicles. The domestic lift industry has kept pace with the current automobile design changes. They have made available to the profit-minded, progressive shop operator lifts that are new in design, lower in height. These will accommodate the lower cars, yet are flexible enough to handle anything from the biggest standard cars to the smallest compacts.

There are many profit opportunities that will automatically present themselves once you place a customer's car upon a lift. As MOTOR AGE pointed out in an article on selling service in the June 1961 issue, "It

*Continued on page 134*



Mechanic above points out to customer badly corroded exhaust system after car was put on lift.

Use your head when  
you use your lift.



# What Else But Mufflers Will Earn You an Average of \$10.51 in 15 Minutes? Answer: NOTHING!

MUFFLERS GIVE YOU your greatest opportunity for profits—and more profits you *must* have if you're going to stay in business. Just *one* muffler and pipe job a day, 6 days a week, will net you almost \$3000 profit per year. Thousands of dealers who go after the business do 5 to 10 muffler jobs *every day*.

According to a survey conducted by the Shell Oil Company, 4 out of every 5 cars you service are potential muffler and pipe sales. *We repeat: 4 out of every 5.*

With AP's pneumatic muffler tool you can install in 15 minutes, meet any competition

Everything works in your favor to get *all* the muffler business before it is lured away by competition. Here's why: Your average customer comes to you 93 times a year if you're a service station operator, 4 times a year if you're a car dealer, and 3 times a year if you run an independent garage. *Every one* of these calls is an opportunity to find a reason for making an exhaust system sale on the cars you service.

But the business won't come to you if you just stand there. You must look for danger signs and warn your customer that he's in for trouble. He will thank you for looking out for his interests. And remember: he'd

GIVE YOUR CAR A LIFT \*



rather buy from you than the fellow down the street, because he's *your* customer and you've no doubt done him plenty favors before. He has confidence in you and will respect your judgment when you tell him his exhaust system needs attention.

So why keep tossing \$10 bills in the air to be wasted away to your competitors when you can stuff them right in your own pocket, where they're needed?

## TAP...LOOK...LISTEN



THINK of all the chances you have to inspect exhaust systems without taking time from your other work. While you're filling the tank you can look under the car and check for rust and holes. You can listen to the sound of the muffler when the car drives in. When you get the car on the lift for its 1000-mile inspection or to put on chains or change a tire, you can make a thorough inspection of the exhaust system—Tap, Look and Listen.

\* Trademark of the National Lubricating Grease Institute

# Here Are Some of the Things AP Gives You to Help You Get Cars on the Lift Where You Make \$\$



Coast to coast, 45,000 of these giant A-Boards are booming business for AP dealers. These silent salesmen really bring the motorists in and pre-sell them on a muffler checkup.



Included in the A-61 Profit Pak is this colorful 15-minute installation banner that you can put up in your heaviest traffic spot to remind customers again that you are in the muffler business in earnest.

National advertising in the Saturday Evening Post has made AP Mufflers a household word to millions of motorists. They know it stands for quality.



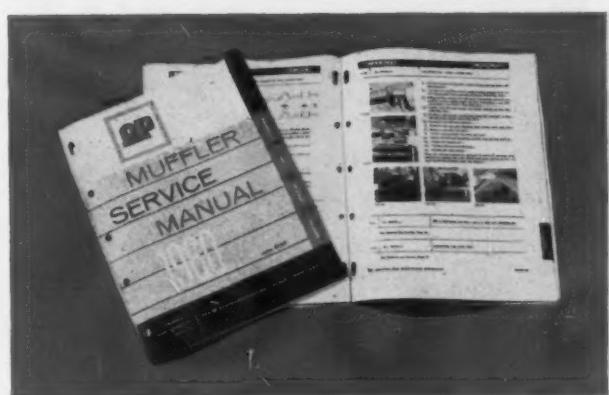
**Once the car is on the lift, AP gives you what it takes to do the job fast... right... and with the most profit**

**AP**  
MUFFLERS AND PIPES



The AP pneumatic cutoff tool deal, with its three specially designed chisels, has revolutionized the muffler installation business. With this equipment, most cars can be serviced in 15 minutes—some in even less. And it's yours FREE with only 4 fast-selling AP Mufflers at list price in the A-61 Profit Pak.

\* Trademark of the National Lubricating Grease Institute.



Another free aid that helps make you and your men muffler experts is the AP Muffler Service Manual. This is a technical training course in print that tells and pictures all anyone needs to know to be able to remove and install mufflers fast. It even tells how to do the difficult jobs in jig time—jobs that call for removal of a wheel or shock.

# Give your profit

## A filter change ...get it while

Profit-minded dealers make it their business to check the filter whenever oil is changed . . . because it's the one part that most often needs changing. *And the whole job is done while the oil drains.* Purolator Filters are

designed to be removed and replaced in just those few minutes! They're the finest you can install. This is the extra profit that is so often overlooked. Go after it every chance you get . . . while the car is on the lift.



### Check the Seal of Protection

Purolator furnishes you this reminder sticker seal. It backs up your recommendation for a filter change. Make sure you stick one on when you change the filter. It insures future profit too.

This Filter Manual shows you how to save both time and money in filter servicing.



# a lift too!



## averages \$1.45 profit the car is on the lift

New spin-on series assures more efficient filtration . . . easier installation

### Free Introductory Wrench Offer

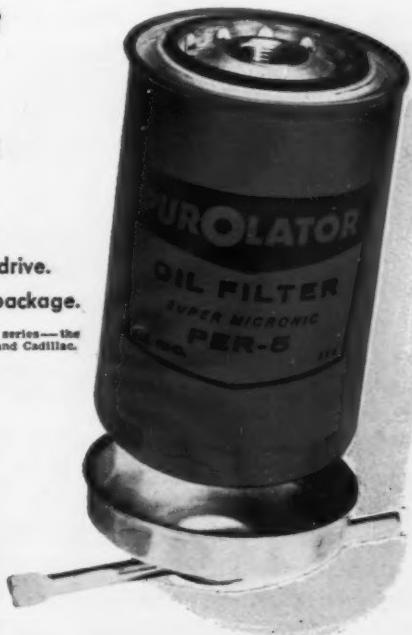
Just to show you how this new design makes filter changing an easy, quick-profit job, we're offering a specially designed Hex-Cap wrench *free* with 3 PER 5's in the W-61 package! Order today from your Purolator Supplier.

"Purolator" and "Super-micronic"  
Reg. U. S. Pat. Off.

### New Hex-Cap wrench FREE with 3 Purolator PER 5's

- Makes filter removal a breeze!
- In a tight place, use it with  $\frac{1}{2}$ " drive.
- Ask your supplier for the W-61 package.

Shown is one of Purolator's new spin-on filter series—the PER 5. Fits late-model Buick, Oldsmobile, Pontiac and Cadillac.



Purolator's **LISTEN TO THE MAN..I** Campaign  
continues to make sales for YOU

This greatest-of-all-time local radio and billboard advertising sets *YOU* up as the car-care expert. It means not only more filter sales, but better business in *all* car service jobs.



The Standard Equipment Line

# PUROLATOR

OIL, AIR & GASOLINE FILTERS

PUROLATOR PRODUCTS INC., RAHWAY, N. J., TORONTO, ONTARIO, CANADA

\* Trademark of the National Lubricating Grease Institute

# A SPECIAL MESSAGE FROM Gabriel ON SHOCK ABSORBERS

## Motorists Seldom Realize When Shocks Are Worn Out . . . A Quick Check On The Lift Will Uncover a Lot of Business

It isn't a sudden bump, bounce or bang that wakes up car owners to the need for new shock absorbers. It's the candid demonstration by the service man when he has the car on the lift.

The truth is that shock absorbers don't wear out suddenly. They g-r-a-d-u-a-l-l-y lose their ability to damp bounces and bumps—so gradually the driver may not notice it. He may even become used to the discomfort and fail to realize the shocks are worn. It happens over a period of months or years. However, the serious risk is that he may be the victim of a driving accident caused by worn shocks. When you point out a need for new shock absorbers to a customer in your station, you can sell him on two important benefits: greater comfort and greater safety.

Of the 60,000,000 cars on the road today, more than half need new shock absorbers right now. This is confirmed by numerous surveys of cars in all parts of the country. It is easy to understand, since 72.3% of all cars are over 3 years old and have at least 25,000 to 100,000 miles on them. They are the prime prospects for shock absorber replacement.

The need for shock absorbers is not just determined by the number of miles a car has been driven. The type of driving is a big factor. For example, if a car is driven over bumpy country roads or cobblestone streets,



shock absorbers will normally wear out much faster than if driven over smooth highways.

While car owners may not realize, until they are shown, that they need new shock absorbers, experience has proven that they are generally willing to have them replaced once the

need has been pointed out. This is the reason shock absorber dealers have such a good opportunity. All you have to do is make shock absorber inspection a regular safety check every time you get a car on the lift. There is plenty of business there right now if you will reach out for it.

The Gabriel 5 for 5 Plan is the sensible route to profit for shock absorber sales. Essentially, this plan shows you how you can average \$5 in profitable shock absorber sales for every 5 minutes you spend looking for worn shocks on the lift. It's a plan to boost your income and your profit, and it's well worth following every day with every car that comes into your station.

If you aren't already a Gabriel dealer, sign up now. Call your nearby Gabriel jobber and get the complete facts.



Spend 5 minutes checking—make \$5. This is the Gabriel 5 for 5 Plan. Make it a practice to inspect the shocks of every car you put on the lift.

\* Trademark of the National Lubricating Grease Institute

# Gabriel Is The Most Complete Line of Shock Absorbers, With The "Right Ride" To Fit Each Customer's Individual Need. Your Customer Gets More, And You Make More, The Gabriel Way.

The famous Gabriel "Lift and Look" plan. Learn all about it from your Gabriel jobber. He'll go over the details in the Gabriel 5 for 5 booklet . . . show you exactly how much extra profit you can earn installing Gabriel shock absorbers . . . tell you how to get the business and give you the facts on Gabriel quality to help you sell.



As a Gabriel certified dealer, you receive a complete kit of hard selling point-of-sale merchandising pieces . . . free. You get a permanent metal sign printed in 3 colors with baked enamel that identifies you as a Gabriel shock absorber specialist; plus a spectacular window trim set printed in 3 colors. Gabriel consumer advertising in national magazines, radio, billboards and bus posters urge motorists to look for Gabriel dealers.



All Gabriel certified dealers get a complete service manual and wall chart free. The manual tells everything you need to know about operation, inspection, replacement and installation of shock absorbers. For quick reference while working, all application and installation data are also printed on the wall chart.



The Gabriel Company • Cleveland 15, Ohio  
The Gabriel Company of Canada, Ltd.  
Toronto 14, Ontario

\* Trademark of the National Lubricating Grease Institute

A SPECIAL MESSAGE FROM *Raybestos* ON BRAKES

# For safety's sake you owe it to your customers to check the brakes every time a car is on the lift

By definition, driving is dangerous. Anybody venturing out on today's crowded highways is taking a calculated risk. It is easy—frighteningly easy—to become just another fatality in a statistical report. That's why we say—and you know it to be true—that good brakes can be the difference between life and death. You actually owe it to your customers to check their brakes every time the car is on the lift. You will be doing them a real favor, and, in the bargain, uncovering a lot of brake work that badly needs doing.

Just how much brake work is around? This fact will give you a good idea: *half the cars on the road need some kind of brake service*. That's right—every other car is a prospect for brake work. This is what was discovered by having dealers all over the coun-



try pull a wheel on cars that came in for other than brake service. And 38% of all cars need relines.

Now nothing will make you as much money and make it as fast as brake work—if you go after it. Records prove that if you 7-Point Check three cars a day five days a

week you will uncover at least five extra reline jobs every week. Here's what the income amounts to in a year's time:

From brake relining . . . . .	\$5,751.20
From drum turning . . . . .	1,170.00
From hydraulic overhauls . . . . .	3,029.00
From grease seal renewal . . . . .	455.00
<b>TOTAL INCREASE . . . . .</b>	<b>\$10,405.20</b>

Of course a really thorough brake job includes the hydraulic system, too, and now that Raybestos brings you a complete line of hydraulic brake parts you are in an even better position than ever to insure your customers' safety when you have the car on the lift.

The new Raybestos parts are built to SAE specifications. And the Raybestos Self-Sealing SAF-T-CUP—the wheel cylinder cup with a double-flared flange that produces the squeegee effect so vital to positive braking—conforms to SAE 60R2, the strictest specification of this kind ever drawn up. To be certain that each Raybestos wheel cylinder cup meets or exceeds SAE 60R2, every batch must undergo 1000 piston strokes per hour for 70 hours at 77° below freezing, and at 250°F.

Raybestos hydraulic brake parts guarantee the same durability and trouble-free operation as Raybestos friction materials. And the Raybestos 7-Point Brake Check, coupled with the new SAFE-T-GAGE, guarantees that you'll get your share of the booming brake service market.

◆ The new SAFE-T-GAGE lets motorists see for themselves just how worn their linings are. And with the Raybestos 7-Point Brake Check, you get paid for each car you inspect.

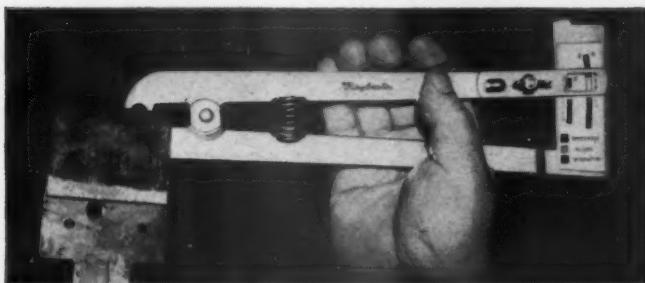
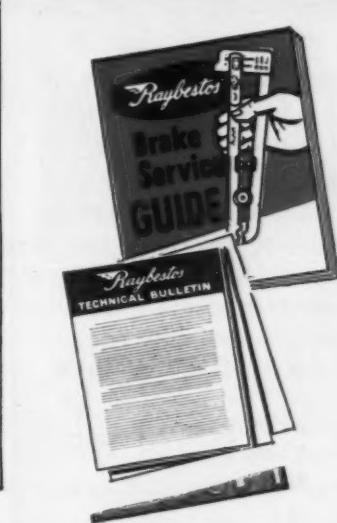


\* Trademark of the National Lubricating Grease Institute

# Raybestos backs its dealers all the way with really strong sales and service help!

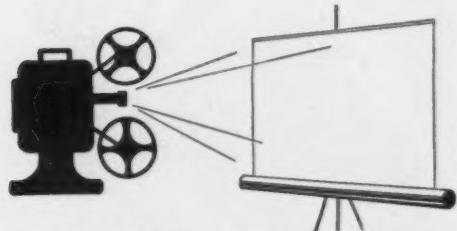


**This sign starts the sale!** Motorists not only know Raybestos—they prefer it. That's why this eye-catching sign is so important. It identifies you as the dealer they are looking for. So "sign up" now!



**Revolutionary new Raybestos SAFE-T-GAGE** enables you to show motorists how much stop is left in their linings. Adjusts instantly for accurate readings on either bonded or riveted lined shoes. Builds customer confidence in your integrity. Gets wheels off cars. Proves whether brake lining is unsafe. Helps you clinch every possible sale. FREE when you order a Raybestos BS-8-61 Lined Brake Shoe Assortment.

**FREE technical aids.** In addition to our Brake Service Guide—an authoritative handbook on the technical data you need to service every type of brake—Raybestos also sends you a steady stream of bulletins to keep you abreast of the latest brake developments.



**Dealer training clinics.** At Raybestos clinics you learn how to do brake work more efficiently and quickly . . . which means even more profitably! Movies show brake work being done on real cars—not brake models. Instruction on the proper use of the newest tools is given. See your Raybestos jobber to arrange for a clinic.

**Raybestos** **7** **POINT**  
**BRAKE** **CHECK**  
(includes adjustment)

1. Pull front wheels, SAFE-T-GAGE the linings
2. Check brake drums
3. Inspect front wheel bearings
4. Clean brake assembly
5. Check hydraulic system
6. Adjust brakes or recommend reline
7. Road test brakes

\* Trademark of the National Lubricating Grease Institute

**RELINE WITH**  
**Raybestos**  
**AMERICA'S BIGGEST** **SELLING** **FRICITION** **MATERIAL**  
**RAYBESTOS DIVISION** of Raybestos-Manhattan, Inc., BRIDGEPORT, CONN.

# SPEED LIFTING AND EARN MORE

Exclusive Globe Pre-Set adjustment gets  
3 out of 4 cars on the lift faster

The smart buy in a lift is the one you can make the most money on. That means getting cars on and elevated in minimum time. It means having maximum accessibility to underside parts so you can do the work fast. And it means easy adaptability to all car makes for any kind of service work.

Nothing else matches the Globe Frame-Kontact® Hoist. The exclusive Pre-Set feature saves precious minutes on 3 out of 4 cars.



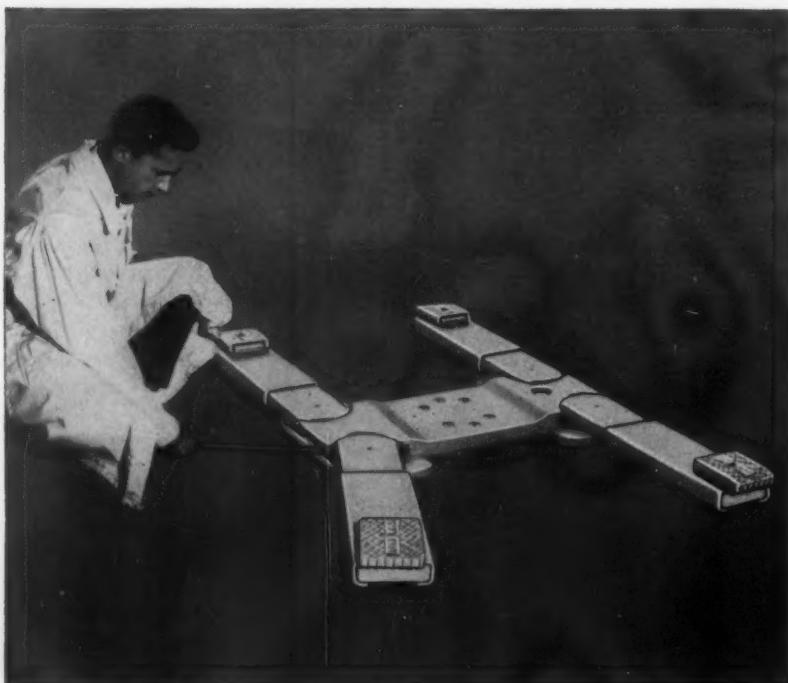
All you do is take these four steps:

1. Set the sleeves flush with the ends of the swivel arms.
2. Spot the car over the hoist.
3. Insert positioning rod in arms and move to pre-set stops.
4. Lift the car.

Then you're ready to do the work that earns you the profit. Faster lifting means you can do each job faster, do more work, earn more every day.

In addition, the Globe Frame-Kontact Hoist is designed to give you a clear view of the car's underbody. Bolster is only 12 in. wide, versus up to 20 in. in some lifts. Narrow but strong swivel arms permit ample working space in the center area. Total hoist width of only 36 in. means you can service even foreign compact cars, yet arms swing wide enough to handle the largest domestic make, too.

Remember, Globe proves its hoists in its own research laboratory. Get complete information. Talk with your nearby Globe sales representative. Or write for bulletin. Globe Hoist Company, East Mermaid Lane at Queen St., Philadelphia 18, Pa.



## How the Pre-Set feature works

Hoist is shown without car to illustrate how operator sets swivel arms. No need to fumble at arm's length under wet, dirty cars. Just insert steel positioning rod in hole at side of arm and apply leverage to swing arm. Automatic stop pre-sets hoist at universal position to handle 3 out of 4 cars.

\* Trademark of the National Lubricating Grease Institute

# GLOBE

**GLOBE HOIST COMPANY**

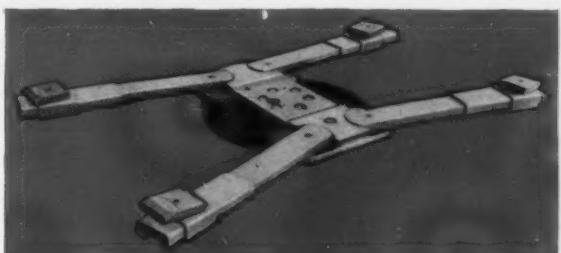
*Hoist is our middle name...  
our only product line*

# Your Most Profitable Worker... A WAYNE LIFT

Yes, a Wayne lift can be your best profit-earning employee—and cost less to keep on the job too. Unfortunately this is not always true, because lifts stand idle, are not put to work where they should be—and owners lose money as a result. Every car that enters your service area should be on the lift at least once a month for routine oil and grease, tightening, safety checks. That is when you get a chance at the real profit business. Once it is up, you can point out the big repair and



## CHOOSE...1 POST...OR 2



**Wayne Universal Frame Lift.** The most versatile single-post lift made. Lifts any car, any frame design up to 8000 lb. Never makes you turn away a customer. 360° rotating pads and adjustable arms permit access even to parts normally under arms. Frame lifting means you do wheel, brake, shock, front end work at eye level.

◀ **Wayne Model E-F-77 2-Post Frame Lift.** All the lifting features and versatility of the single-post version, plus the obvious advantages of walk-through accessibility. The absence of a center bolster permits dropping of complete drive train, speeds muffler and tailpipe replacement. You handle everything from simple lubes to major overhauls for maximum profit from a single lift.



THE WAYNE PUMP COMPANY • Division of Symington Wayne Corporation  
Salisbury, Md. • Fort Wayne, Ind. • Wayne Pump, Canada, Ltd., Toronto, Ontario

\* Trademark of the National Lubricating Grease Institute

# NEW JOYCE PACK-HITE QUICK SPOT LIFTS BOOST SERVICE SALES AND PROFITS!



27Q SERIES TWO-POST  
MECHANICS' LIFT



10Q SERIES SINGLE POST  
UNIVERSAL LIFT



With Pack-Hite Quick Spot Lifts, your mechanics can perform 49 different services, plus lubrication . . . can work faster and more efficiently to build bigger sales and profits for your service area! Pack-Hite Quick Spot provides maximum underside accessibility at car or truck front end, rear end and down-the-center. Mechanics can clearly see and easily service transmissions, drive shafts,

differentials, universal joints and brakes. Wheel suspensions are relaxed for better lubrication, tire, wheel, brake, spring and shock absorber service. Time savings average 30% for all jobs compared to creeper or floor jacks! As a bonus, Pack-Hite Quick Spots' new, low 3 3/4" profile eliminates all clearance problems with low-slung cars! Write today for new Joyce Bulletins 171-L and 172-L.

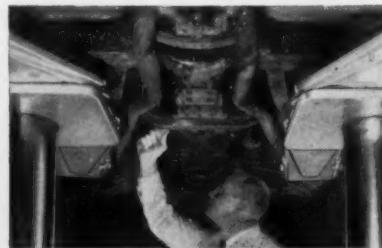
## **Maximum Accessibility...**



FRONT END



REAR END



DOWN THE CENTER



## **THE JOYCE-CRIDLAND COMPANY**

*Designers and builders of lifting equipment since 1873*

U.S.A. 2027 E. FIRST STREET, DAYTON 3, OHIO

CANADA: MIDLAND FOUNDRY & MACHINE CO., LTD., MIDLAND, ONT.

\* Trademark of the National Lubricating Grease Institute

**Rotary**

# LIFTS... YOUR BASIC SHOP TOOLS

GIVE YOUR CAR A LIFT \*



FOR SAFETY, COMFORT & SAVINGS

## FP-46 SINGLE-PLUNGER FRAME LIFT

*for quick service and minor repairs*

- Easy-swing arms, rotating pick-up pads are quickly set to lift any car at manufacturer's designated pick-up points
- Pick-up pads have three height settings for contacting hard-to-reach pick-up points
- Formed steel arm construction with welded interior reinforcing bar gives extra strength without extra weight
- Arms easily removable for cleaning
- Compact superstructure is out of the way of most undercar parts for easy accessibility

## FP-28 TWO-PLUNGER FRAME LIFT

*for complete service and mechanical work*

- Parallel runners with no cross-member give full undercar accessibility from bumper to bumper
- Exclusive cable-and-strut equalizing system keeps both runners exactly level at all stages of travel . . . extremely safe and practically damage proof
- Arm and pick-up assembly identical in design to FP-46 Lift described at left . . . handles all cars easily
- No dirt-collecting floor depressions under lift
- Fool-proof pin-type safety locks

**CHOICE OF JACKS:** Both the Rotary FP-46 and FP-28 lifts are available with either Airdraulic (semi-hydraulic) or Full Hydraulic Jacks . . . dependable, trouble-free units developed over a 35-year period and proved throughout the world. They feature the exclusive Rotary Hydra-Seal which prevents oil leaks or jumpy lift action. Use coupon below to order catalogs. Also request the Auto Lift Selection Guide, handy manual with helpful suggestions on shop layout and effective use of lifts.

**Rotary**

**AUTO LIFTS**

**DOVER**

DOVER CORPORATION • ROTARY LIFT DIV.  
Memphis, Tenn. • Madison, Ind. • Chatham, Ont.

First name in auto lifts • passenger and freight  
elevators • industrial lifting devices

\* Trademark of the National Lubricating Grease Institute

## MAIL COUPON FOR CATALOGS

Dover Corporation, Rotary Lift Division  
1135 Kansas, Memphis 2, Tenn.

Please send:  Rotary FP-46 Lift Catalog  Rotary FP-28 Lift Catalog  
 Shop layout and lift selection guide

NAME \_\_\_\_\_

COMPANY \_\_\_\_\_

ADDRESS \_\_\_\_\_

\_\_\_\_\_



**CASH-IN ON FAST LUBE SERVICE!** If your lube bay is just an ordinary low-profit area, turn it into a gold mine with Alemite Strato-Line Lubrication Equipment. You save time and labor costs . . . get faster turnover! No other pumps give you such instant power—with no time lag every time the gun hits the fitting.

# MEET A MAN MAKING MONEY

**HE'S EARNING AN EXTRA \$1,000 PROFIT!** And so can you . . . on automatic transmission refill fluid and service . . . doing an average of just five jobs a week for one year. A portable Alemite Strato-Line drain rolls into position instantly—extends and holds firmly at proper height. An overhead reel delivers exact measure of AT fluid, power-pumped from original drum—completely protected from contamination. Result: a profitable operation completed *in minutes*—with less labor cost—with no hazard of customer complaints from grit or foreign matter entering the transmission.

This is just another example of how Alemite's *complete line* of automotive service products makes it possible for you to speed up service—make bigger profits from increased volume.



**ADD \$3,102 TO YOUR YEAR'S PROFITS!** Just a single job a day with the Alemite Cross-Sight Wheel Aligner does it. Simple to operate, fast and accurate—you become an expert on the first job. Works wherever the car is—inside or out . . . whether on a level surface or not.

\* Trademark of the National Lubricating Grease Institute



**BIG MONEY-MAKER FOR SMALL SPACE!** The portable Alemite Spray-Kleen Car Wash Pump gives you high-pressure cleaning—with no costly, space-wasting installation required. You can eliminate slow, time-consuming hand wash jobs—convert a "nuisance" service to high speed, profitable power washes!



**MAKE AN EXTRA \$3,800 PROFIT!** Do it with the famous Alemite "On-the-Car" Wheel Balancer averaging just two jobs a day for a year. Exclusive Hand Strobe Light and pickup gives accurate meter reading indoors or outdoors—proves to your customer the need for balancing—shows perfect results when the job is completed. Gives both up-and-down, side-to-side correction.



**ALEMITE**  
DIVISION  
**STEWART-WARNER**  
CORPORATION



Dept. DT91, 1850 Diversey Parkway, Chicago 14, Illinois  
In Canada: Stewart-Warner Corporation of Canada, Ltd., Belleville, Ontario

Send for a free, fact-filled booklet telling the whole, big-profit story of Alemite Equipment. Indicate which specific products you are most interested in.

## STRATO-LINE LUBRICATION EQUIPMENT

Wheel Balancer  Wheel Aligner  Spray-Kleen Car Wash

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_



# ALL-NEW ARO LUBE LINE TO MAKE YOUR BUSINESS CAR CARE HEADQUARTERS



New Aro Safe-Gard Portable Lube Equipment is available in a complete line . . . precision engineered and smartly styled to help you do more car maintenance business.

Dress up the lube bay and dress up the profit statement with all-new Aro Safe-Gard Reels. Provide fast, sure command of lubes, motor oil, air and water. Loaded with features for lasting satisfaction.

## SETS YOU UP TO SELL COMPLETE CAR MAINTENANCE JOBS FOR SAFE DRIVING...KEEP BUSINESS AND PROFITS GROWING!

Today's motorists are sold on *complete* car care service for safe, trouble-free going. They hear about it, read about it, drive in where it's offered. Any dealer who hopes to prosper had better provide it. And that calls for new ARO Safe-Gard equipment—for *complete* chassis, gear, A. T. F., motor oil, air and water service. New ARO Safe-Gard Lube Equipment will step up speed and efficiency, let you turn out good work faster. And its clean-lined, modern styling captures customer confidence . . . assures repeat business. All this, plus ARO-engineered dependability (backed by an exclusive warranty) that's unmatched in the industry. See your Aro Representative soon.

### Complete Line of Automotive Service Equipment



VACUUM  
CLEANERS



AIR TOOL  
KITS

# ARO

### AUTOMOTIVE SERVICE EQUIPMENT

The Aro Equipment Corporation, Bryan, Ohio

Aro of Canada, Ltd., Rexdale (Toronto), Ontario

Factory Branches: Buffalo, Chicago, Cleveland, Detroit, Elizabeth, N. J., Los Angeles, New York City, Minneapolis-St. Paul, San Mateo, Calif.

Offices in all Principal Cities.



## Get these new labels for the new car look!



Martin Senour refinishing products are sporting spanking new labels. They're "color-coded" for easy identification. The blue Martin Senour spiral is for lacquer...the green for enamel...magenta means acrylic and gray spirals indicate Martin Senour specialties.

Inside the cans you'll find the traditionally high-quality refinishing products for which Martin Senour is famous. They give a new car look because Martin Senour makes them *specifically* to be used in the shop.

Whatever you need for refinishing—from preparing the surface to perfectly color-matched paints—Martin Senour makes it. Each is the best product of its kind, too, because Martin Senour is the world's leading producer of shop-engineered refinishing products. The complete selection is available exclusively at your local N.A.P.A. jobber.

**MARTIN SENOUR PAINTS**  
Automotive Division • Chicago 8, Illinois



# CURRENT PASSENGER CAR PRICE, WEIGHT AND BODY TABLE

Following are prices at factory for cars with standard equipment as of August 25, 1961  
State or local taxes, transportation and finance charges and optional equipment are extra.

BODY MAKE AND MODEL	List Price at Factory without Federal Taxes and Handling Charges	Federal Taxes and Handling Charges	Suggested Price at Factory including Federal Taxes	Shipping Weight	BODY MAKE AND MODEL	List Price at Factory without Federal Taxes and Handling Charges	Federal Taxes and Handling Charges	Suggested Price at Factory including Federal Taxes	Shipping Weight	BODY MAKE AND MODEL	List Price at Factory without Federal Taxes and Handling Charges	Federal Taxes and Handling Charges	Suggested Price at Factory including Federal Taxes	Shipping Weight					
<b>AMERICAN MOTOR CORP.</b>																			
RAMBLER					CHRYSLER CORP., cont'd					FORD MOTOR CO., cont'd					GENERAL MOTORS CORP., cont'd				
American-6					Sedan, 4d....	2706	260	2966	3700	MERCURY					CORVAIR, cont'd				
DeLuxe					Hardtop, 2d....	2767	265	3032	3690	Meteor-8									
Sedan, 2d....	1684	161	1845	2504	Hardtop, 4d....	2840	270	3110	3740	600					Sta. Wag....	2075	...	...	2530
Sedan, 2d....	1730	164	1894	2541	Convertible	2787	280	3252	3785	Sedan, 2d....	2201	216	2417	3549	700	1810	175	1985	2380
Sta. Wagon, 2d....	1902	178	2080	2562	Sta. Wagon, 6p....	3011	283	3241	4115	Sedan, 4d....	2251	220	2471	3616	32...	1880	179	2039	2380
Sta. Wagon, 4d....	1940	181	2129	2595	Sta. Wagon, 9p....	3118	291	3409	4125	Hardtop, 2d....	2367	228	2505	3582	3...	2135	196	2331	2555
Super-6					IMPERIAL					Sedan, 4d....	2417	232	2649	3664	Monza 900				
Sedan, 2d....	1763	167	1930	2506	Custom	2708	280	3252	3785	Hardtop, 2d....	2423	233	2656	3546	Coupe.....	2010	191	2201	2380
Sedan, 4d....	1809	170	1979	2544	Southampton, 2d....	4481	442	4923	4715	Hardtop, 4d....	2483	238	2721	3682	Sedan, 4d....	2010	191	2201	2425
Sta. Wagon, 2d....	1981	184	2165	2554	Crown	2727	280	3252	3785	Sta. Wag....	2562	244	2606	3582	Sedan, 4d....	2261	212	2425	2555
Sta. Wagon, 4d....	2027	187	2214	2620	Southampton, 4d....	4928	475	5403	4790	Meteor-8					Sedan, 4d....	2433	218	2651	3582
Custom-6					Southampton, 4d....	5155	492	5647	4855	600					Sedan, 4d....	3619	315	3834	2905
Sedan, 2d....	1884	176	2060	2557	Le Baron	4854	455	5105	4740	Hardtop, 2d....	2309	224	2533	3647	OLDSMOBILE				
Sedan, 4d....	1929	180	2109	2594	Southampton, 4d....	5273	501	5774	4865	Hardtop, 4d....	2359	228	2567	3714	F-85				
Sta. Wag., 2d....	2102	193	2295	2612	Le Baron	5870	556	6426	4875	Sta. Wag....	2475	238	2711	3680	Club Coupe....	2125	205	2330	2539
Sta. Wag., 4d....	2148	196	2344	2671	Southampton, 4d....	1832	175	2007	2585	Sta. Wag....	2525	240	2765	3760	Sedan, 4d....	2175	209	2384	2541
Custom-6					Southampton, 4d....	1889	180	2069	2505	Hardtop, 4d....	2591	244	2837	3780	Del. Sed., 4d....	2300	219	2519	2547
Classic-6					Sta. Wag., 6p....	2179	203	2382	2760	Monterey	2622	247	2869	3777	Cutlass, 2d....	2395	225	2621	2604
DeLuxe					Sta. Wag., 6p....	2179	203	2382	2760	Monterey	2622	247	2869	3777	Sta. Wag., 2d....	2425	229	2654	2718
Sedan, 4d....	1918	180	2098	2915	Sta. Wag., 6p....	2179	203	2382	2760	Monterey	2622	247	2869	3777	Sta. Wag., 3d....	2550	239	2789	2731
Sta. Wag., 4d, 2s....	2233	204	2437	3047	Sta. Wag., 6p....	2179	203	2382	2760	Monterey	2622	247	2869	3777	Del. Wag., 3d....	2650	247	2897	2822
Super					Sta. Wag., 6p....	2179	203	2382	2760	Monterey	2622	247	2869	3777	Series 88				
Custom-6					Sta. Wag., 6p....	2179	203	2382	2760	Monterey	2622	247	2869	3777	Sedan, 2d....	2574	261	2835	3966
Sedan, 4d....	2016	183	2199	2600	Sta. Wag., 6p....	2179	203	2382	2760	Monterey	2622	247	2869	3777	Celeb. Sedan....	2634	268	2900	4031
Convertible					Sta. Wag., 6p....	2179	203	2382	2760	Monterey	2622	247	2869	3777	Hol. Coupe....	2687	289	2956	3981
Classic-6					Sta. Wag., 6p....	2179	203	2382	2760	Monterey	2622	247	2869	3777	Hol. Sp. Sed....	2759	275	3034	4074
DeLuxe					Sta. Wag., 6p....	2179	203	2382	2760	Monterey	2622	247	2869	3777	Convertible....	2991	293	3284	4068
Sedan, 4d....	2016	183	2199	2600	Sta. Wag., 6p....	2179	203	2382	2760	Monterey	2622	247	2869	3777	Fiesta, 2s....	3065	298	3363	4354
Convertible					Sta. Wag., 6p....	2179	203	2382	2760	Monterey	2622	247	2869	3777	Fiesta, 3s....	3165	306	3471	4428
Super					Sta. Wag., 6p....	2179	203	2382	2760	Monterey	2622	247	2869	3777	Super 88				
Custom-6					Sta. Wag., 6p....	2179	203	2382	2760	Monterey	2622	247	2869	3777	Celere, Sedan....	2881	285	3176	4065
Super					Sta. Wag., 6p....	2179	203	2382	2760	Monterey	2622	247	2869	3777	Hol. Comp....	3020	305	3325	4042
Custom-6					Sta. Wag., 6p....	2179	203	2382	2760	Monterey	2622	247	2869	3777	Hol. Sp. Sed....	3092	310	3402	4099
Custom-6					Sta. Wag., 6p....	2179	203	2382	2760	Monterey	2622	247	2869	3777	Convertible....	3268	324	3592	4099
Custom-6					Sta. Wag., 6p....	2179	203	2382	2760	Monterey	2622	247	2869	3777	Fiesta, 2s....	3336	329	3665	4382
Custom-6					Sta. Wag., 6p....	2179	203	2382	2760	Monterey	2622	247	2869	3777	Fiesta, 3s....	3436	337	3773	4445
Custom-6					Sta. Wag., 6p....	2179	203	2382	2760	Monterey	2622	247	2869	3777	Series 88				
Custom-6					Sta. Wag., 6p....	2179	203	2382	2760	Monterey	2622	247	2869	3777	Celeb. Sedan....	3533	354	3887	4231
Custom-6					Sta. Wag., 6p....	2179	203	2382	2760	Monterey	2622	247	2869	3777	Hol. Sedan....	3658	363	4021	4269
Custom-6					Sta. Wag., 6p....	2179	203	2382	2760	Monterey	2622	247	2869	3777	Hol. Coupe....	3715	388	4053	4187
Custom-6					Sta. Wag., 6p....	2179	203	2382	2760	Monterey	2622	247	2869	3777	Hol. Sp. Sed....	3786	373	4158	4319
Custom-6					Sta. Wag., 6p....	2179	203	2382	2760	Monterey	2622	247	2869	3777	Convertible....	3975	387	4362	4225
Custom-6					Sta. Wag., 6p....	2179	203	2382	2760	Monterey	2622	247	2869	3777	Le Sabre				
Custom-6					Sta. Wag., 6p....	2179	203	2382	2760	Monterey	2622	247	2869	3777	Sedan, 2d....	2720	273	2983	4033
Custom-6					Sta. Wag., 6p....	2179	203	2382	2760	Monterey	2622	247	2869	3777	Sta. Wag., 2d....	2881	285	3176	4065
Custom-6					Sta. Wag., 6p....	2179	203	2382	2760	Monterey	2622	247	2869	3777	Sta. Wag., 3d....	2610	260	2905	3225
Custom-6					Sta. Wag., 6p....	2179	203	2382	2760	Monterey	2622	247	2869	3777	Sta. Wag., 4d....	2715	209	2956	3225
Custom-6					Sta. Wag., 6p....	2179	203	2382	2760	Monterey	2622	247	2869	3777	Sta. Wag., 5d....	2777	270	3041	3225
Custom-6					Sta. Wag., 6p....	2179	203	2382	2760	Monterey	2622	247	2869	3777	Sta. Wag., 6p....	2868	285	3136	3225
Custom-6					Sta. Wag., 6p....	2179	203	2382	2760	Monterey	2622	247	2869	3777	Sta. Wag., 7s....	2980	277	3136	3270
Custom-6					Sta. Wag., 6p....	2179	203	2382	2760	Monterey	2622	247	2869	3777	Sta. Wag., 8s....	3020	277	3136	3270
Custom-6					Sta. Wag., 6p....	2179	203	2382	2760	Monterey	2622	247	2869	3777	Sta. Wag., 9s....	3065	305	3350	3445
Custom-6					Sta. Wag., 6p....	2179	203	2382	2760	Monterey	2622	247	2869	3777	PONTIAC				
Custom-6					Sta. Wag., 6p....	2179	203	2382	2760	Monterey	2622	247	2869	3777	Tempest				
Custom-6					Sta. Wag., 6p....	2179	203	2382	2760	Monterey	2622	247	2869	3777	Std. Coupe....	1925	188	2113	2785
Custom-6					Sta. Wag., 6p....	2179	203	2382	2760	Monterey	2622	247	2869	3777	Sedan, 4d....	1975	192	2167	2800
Custom-6					Sta. Wag., 6p....	2179	203	2382	2760	Monterey	2622	247	2869	3777	Convertible....	2095	202	2297	2795
Custom-6					Sta. Wag., 6p....	2179	203	2382	2760	Monterey	2622	247	2869	3777	Sta. Wag., 6p....	2225	213	2438	2980
Custom-6					Sta. Wag., 6p....	2179	203	2382	2760	Monterey	2622	247	2869	3777	CADILLAC				
Custom-6					Sta. Wag., 6p....	2179	203	2382	2760	Monterey	2622	247	2869	3777	Coupe....	4475	417	4892	4560
Custom-6					Sta. Wag., 6p....	2179	203	2382	2760	Monterey	2622	247	2869	3777	Sedan, 6w....	4650	430	5080	4860
Custom-6					Sta. Wag., 6p....	2179	203	2382	2760	Monterey	2622	247	2869	3777	DeVille, 4w....	4810	442	5252	4959
Custom-6					Sta. Wag., 6p....	2179	203	2382	2760	Monterey	2622	247	2869	3777	DeVille, 4w....	5000	455	5455	4775
Custom-6					Sta. Wag., 6p....	2179	203	2382	2760	Monterey	2622	247	2869	3777	Biarritz	5850	827	6477	4805
Custom-6					Sta. Wag., 6p....	2179	203	2382	2760	Monterey	2622	247	2869	3777	6 Special	5700	533	6233	4770
Custom-6					Sta. Wag., 6p....	2179	203	2382	2760	Monterey	2622	247	2869	3777	Hardtop, 2d....	3460	365	3825	4260
Custom-6					Sta. Wag., 6p....	2179	203	2382	2760	Monterey	2622	247	2869						



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# **ROBERT BOSCH**

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## **ANNOUNCES**

# **WIDE RANGE GIFT PROGRAM**

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The Robert Bosch thermo-elastic spark plug wide range gift program is for you. Designed with a wider selection of gifts so that you get the kind of gift you want . . . and you give your customer the extra benefit of wide range performance with Robert Bosch thermo-elastic spark plugs. When you install Robert Bosch thermo-elastic spark plugs both you and your customers get something extra.

---

Mall the coupon (inside page) for full particulars right now.

---

# **ROBERT BOSCH**

***thermo-elastic***

---

**SPARK PLUGS**

---

# WIDE RANGE PROGRAM

**HOW IT OPERATES** Save the wrappers from the Robert Bosch thermo-elastic spark plugs you install, until you have the number you need for the gift of your choice—whether it is a rifle or records . . . books or baby clothes . . . tools or table cloths . . . Then return the order form that we will send you with your Free Wide Range Gift Catalog.

**HOW TO GET STARTED** Mail the attached reply card completely filled out . . . We do the rest . . . you will receive your illustrated, full color, Wide Range Gift Catalog and the complete Robert Bosch Thermo-elastic Spark Plug Dealer Kit.

**HOW TO INCREASE PROFITS** Smart dealers across the country have been increasing profits by stocking the "wide-range six" assortment of Robert Bosch thermo-elastic spark plugs. This assortment covers most of the domestic cars—only one more type and you have got the imports too. You will find full details in the dealer kit.

And to back you up—order your supply of the many bold and different selling aids that are yours for the asking; see the back page.

## THERE'S A WIDE RANGE GIFT FOR YOU! →





# **WIDEST VARIETY OVER 600 GIFTS FOR YOU YOUR FAMILY AND HOME**

Here is a glimpse of the wide selection of over 600 gifts available to you. Whether your taste runs to a reel or a rifle . . . silver or a sauce pan . . . there's a wide range gift for you. Mail the reply card below for the free full color, wide-range gift catalog.

**B U S I N E S S R E P L Y M A I L**

NO POSTAGE STAMP NECESSARY IF MAILED IN THE UNITED STATES

**ROBERT BOSCH CORPORATION**  
40-25 CRESCENT STREET LONG ISLAND CITY 1, N.Y.

FIRST CLASS  
PERMIT NO. 383  
NEW YORK, N.Y.

**ROBERT BOSCH**  
**thermo-elastic**  
SPARK PLUGS

# COVER MOST CARS

6 Robert Bosch thermo-elastic spark plug types on your shelf and you can serve most American cars and many of the imports. One more Robert Bosch plug and you cover most of the remaining imports. In this way with a minimum investment you are able to handle the widest number of plug applications. You will receive full details in the dealer kit.

Send details of the Robert Bosch thermo-elastic spark plug wide-range gift program including my free gift catalog and dealer sales kit.

Firm Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

I buy my plugs from \_\_\_\_\_  
(Salesman's Name)

Jobber's Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

This program void in any state or municipality where a program of this type is taxed, prohibited or otherwise restricted.

## YOU GET ALL THESE FREE PROFIT BUILDERS

To increase your profits, Robert Bosch gives you free a complete coordinated sales-promotion program of dynamic dealer aids including . . .

### CONSUMER FOLDER WITH APPLICATION INFORMATION



### CONSUMER FOLDER WITH SPARK PLUG AND GAS CHART



### SPARK PLUG CATALOG WITH TROUBLE SHOOTING TIPS



### SPARK PLUG TECH BOOK WITH SERVICE, INSTALLATION TECHNICAL DATA



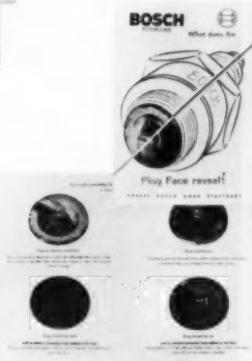
### WALL CHARTS WITH CROSS-REFERENCE CHARTS



### WINDOW SIGNS OUTSTANDING DAY-GLOW COLORS



### MAIL STUFFERS TO BRING MORE TRAFFIC



### SPARK PLUG COLOR CHART FOR PLUG DIAGNOSIS

Ask your jobber or contact

**ROBERT BOSCH  
C O R P O R A T I O N**

40-25 Crescent Street, Long Island City 1, N. Y.

225 Seventh Street, San Francisco, Calif.

This program void in any state or municipality where a program of this type is taxed, prohibited or otherwise restricted.

# CHILTON MANUALS PAGE

## TROUBLE SHOOTING ON REAR AXLES



By Paul A. Murphy

Editor of Chilton's  
Flat Rate and  
Auto Repair Manuals

WHEN a rear axle is suspected of being noisy it is advisable to make a thorough test to determine whether or not the noise originates in the tires, road surface, front wheel bearings, engine, transmission or drive line. Naturally, noises which sound like the rear axle assembly, but originate at some other point, cannot be corrected by working on the rear axle.

Bear in mind that snow tires on smooth roads, and any type of tires on some cobble roads, will give off a noise which is very similar to a rear axle noise.

### DIAGNOSING AXLE NOISES

#### First Test

Thoroughly warm up the engine and, if the car is equipped with an overdrive, lock the overdrive out. Drive on a perfectly smooth road at about 10 miles per hour and listen carefully and make a pencil note of the noises and the speed at which the noises come in.

Increase the speed until the car reaches about 50 miles per hour, and as the speed is increased notice if the noises which were heard at low speed increase their pitch or change in any way.

Notice particularly the speed at which each noise comes in and goes out.

Shut down the throttle and let the car coast down to a stop. Again make a note of the speed at which the sound changed and the speed at which they come in and go out.

Probably the in and out speed of the various noises will remain constant.

#### Second Test

**Caution:** Make certain that clear highway space is available for this test since it requires driving the car in excess of the usual speed limits.

Drive the car up to approximately 60-65 miles per hour, shift into neutral and turn off the ignition. **Caution:** This is dangerous; be sure you know how to handle the car coasting at that speed. Allow the car to coast until it comes down to a dead stop and listen again and see if the same noises are present as were present in the first test, and if they come in and out at the same speed. If a low pitch sound comes in at a very low speed under this condition, it is generally a tire noise.

Generally speaking, any of the noises noted in the first test, which also show up in the second test, can be eliminated as axle noises because on the second test the axle was not under load and will probably produce no other noise except bearings.

Noises which appeared in the first test, but do not show up in the second test, are very likely rear axle noises.

#### Third Test

In order to eliminate the engine, muffler and exhaust system as a source of noise which may be confused as rear axle noises, make the following test: Park the car, place it in gear and run the engine, ease the clutch into partial engagement (cars with standard transmissions), holding the car stationary with the parking brakes. Slowly accelerate the engine, and notice that noises which come in now are those caused by the engine and the exhaust system, and if they are the same as any of the noises heard in test No. 1, the axle itself is eliminated. **Caution:** Do not maintain this test for any period of time more than about

*Continued on page 142*

## MOTOR AGE CLINIC

### for troubleshooting



Chevy Power Steering Control Valve

#### '59 Chevy Has A Power Steering Problem

We are having trouble with the power steering on a 1959 Chevrolet and hope you can give us some advise. This has the pump driven by the generator armature shaft when you turn the wheel either way, it makes a squealing noise. Finally after driving a while it twists off the splined end of the armature that drives the pump. We have torn the pump down and there does

not seem to be anything wrong with it but it seems to build up so much pressure that it twists the armature shaft off. We have been regular Chilton subscribers since about 1933 and hope you can give us some information on this.

A. M. Petersburg  
The Kennedy Garage  
Kennedy, Minn.

I WOULD suggest checking the pump pressure first. Attach

the pressure gage in the pressure line between the pump and gear. Speed up engine to about 1000 rpm. If the pressure goes beyond 125 psi without turning the steering wheel, look for a restriction in the hose or a stuck control valve. Also check the steering moving parts for binding as well as the worm and sector adjustment.

#### Vibration Problem On A 1958 Pontiac

I have a 1958 Pontiac super chief 4-door. The car when it hits a little bump keeps right on vibrating and the whole car shakes. It does it when the car goes fast or slow, out on the highway or in town, but not on a black top unless its rough or wavy. It has done it ever since it was new. I thought it just needed breaking in, but at 20,000 miles I tried to eliminate it.

I put on new shocks. It helped some but not completely. It made it seem to ride a little rougher or more solid. I also put in all new rubber bushings on the front stabilizer bar, put in less air in the tires, 27 lbs. and checked the body bolts. The tires are wearing even and the car steers well. There are cracks at the top corners of the door jams. Could it be that something does not have enough bracing? Seems like its worse when the back wheels hit a bump. It seems nobody around

By Jack Montgomery,  
Technical Editor



here knows what to do for it. I've got about 30,000 miles on now.

Clayton B. Haberkamp  
Garner, Iowa

I HAVE a few suggestions that have helped others which had similar problems. First, make sure that all four wheels are properly balanced. Check the four bolts that hold the steering to the frame. Make sure they are tight. Jack up front suspension under "A" frame to check for loose ball points. Check motor mounts for looseness, especially the rear. Loosen all the body bolts and run car over some rough roads. Then retighten them to the specified torque. These should not be overtightened. The rubber should be able to flex under the load.

### Oil Leaks Out Dipstick Hole On '58 Buick

I would appreciate it very much if you would answer the following question. Would it be possible for an engine to have sufficient leakage past the rings to cause it to lose oil in event the oil measuring stick was left out? The car was in for service for tune-up, new plugs, points, condenser, and lubrication. Oil was spread all over the right side of

the block. There was no other outlet for the oil to flow except from where the oil measuring stick was left out. I would appreciate an answer from you to settle a disagreement among the mechanics. The car is a 1958 Buick. At the time this happened the car was only a year old with 52,000 miles.

E. H. Gates  
Rockford, Ill.

IT could be possible, providing the rings were badly worn and the breather pipe clogged. I have seen similar cases and the trouble was traced to excessive blow-by usually caused by worn rings or a broken rings.

### Reader's Solution To Leaking Power Steering

I was reading the July issue of MOTOR AGE and in your trouble shooting page I read an article where a man had power steering trouble on his 1959 Olds. He complained of an oil leak and oil coming out of the filler cap while driving. We had a case of the same trouble and I may be able to help solve the trouble. We found a fine hairline crack in the inner part of the body. We had to take it apart two different times before we came onto the crack.

It would open up after the oil got hot and caused the inner pressure to force the oil out. We replaced the pump body and it corrected the trouble.

Iv Hearth, Parts Mgr.  
Vogt Oldsmobile, Inc.  
Bradenton, Florida

### Caution On Balancing Front Wheels

On front suspension systems using the unloaded lower ball joints such as the 1957-61 Mercury, proper wheel balance may not readily be obtained while using "on the car" wheel balancing equipment. In some instances, additional time may be required to obtain a satisfactorily balanced tire, wheel and brake drum assembly. This is due to the fact that if the front of the vehicle is lifted by the lower suspension arm, the lower ball joint will become unloaded and the tire, wheel and drum assembly will not be held in the proper position. For this reason, these vehicles should be balanced with the front of the vehicle lifted at a point other than at the lower suspension arms, so that the lower ball joints remain loaded.

Also, keep in mind that if the wheel and tire assemblies are to be balanced off the car, be sure to include the brake drum with the wheel and tire assembly. These should always be balanced as a complete unit.

### Crankcase Vent Valves Must Be Cleaned

Due to the nature of crankcase gas by-products, the new crankcase vent systems must get frequent service attention. The com-

Continued on page 182

only

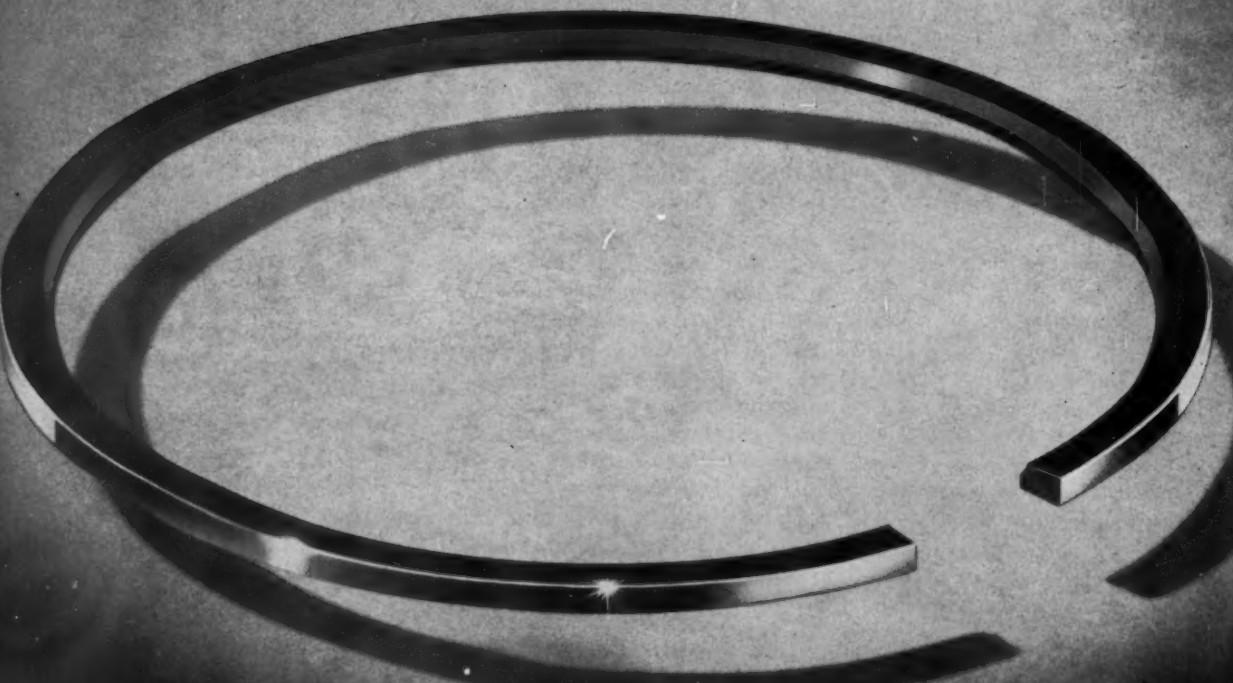
# McQUAY-NORRIS PISTON RINGS

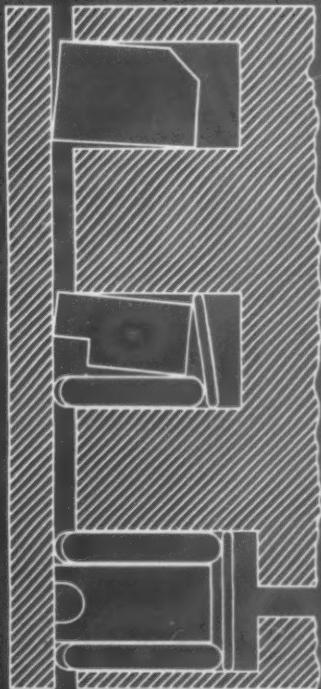
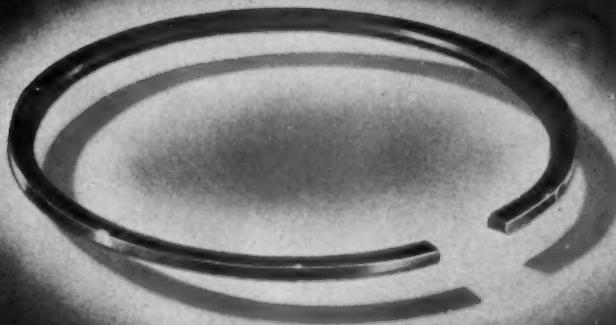
give  
you



## SEVEN WIPI NG EDGES

-to restore lost compression and horsepower  
... eliminate oil consumption





## SEVEN WIPI NG EDGES

The famous Leak-Proof piston ring set (including the outstanding "100" oil ring) has seven wiping edges. No other ring set has so many wiping edges to save your customers gas and oil.

There's a reason why so many thousands of mechanics use nothing but McQuay-Norris Leak-Proof piston rings—it's the complete customer satisfaction that comes from the new car performance and operating economy that Leak-Proof piston rings give. And there's nothing like satisfied customers to insure your consistent profits.

# McQUAY- NORRIS

McQUAY-NORRIS  
MANUFACTURING CO.,  
ST. LOUIS • TORONTO



## New Volume Concept Pays Off

*Albany, N.Y. shop uses unique layout and methods to attract big driver, dealer, and fleet business*



**Richard B. Hand, Jr., owner of Grease Lightning, Inc.**

**G**REASE Lightning, Inc. in Albany, N.Y. draws anywhere from 50 to 80 vehicles into its modern shop every day by offering customers a unique service-minded concept in car safety maintenance.

Richard B. Hand, Jr., the owner, calls it preventive care—like a routine health ex-

amination—and says its success is based upon the following combination of factors:

(1) **Speed.** Oil and lubrication job together with full safety checkup takes only 15 to 20 minutes while most adjustment work can be done within an hour.

(2) **Efficiency.** Mechanics concentrate ex-

Service Manager writes a repair order in front of modern, well-stocked supply room.



Four lifts are used, enabling the shop to handle as many as one-hundred cars per day.





Sign with bright red letters, draws customers from heavily traveled Route 5, Albany's "automobile row."

clusively on safety and small repair work using most modern equipment.

(3) *Division of Labor.* Mechanics handle service end only while owner takes care of business end.

(4) *Dealer Business.* Because of labor division, owner is able to solicit sizeable volume from used and new car dealers as well as small taxi and truck fleets.

(5) *Comfort and Cleanliness.* Motorists can relax in immaculate waiting room which even has a television set.

(6) *Promotion and Advertising.* Shop uses customer followup system direct from repair order, and attracts new patrons through use of all media.

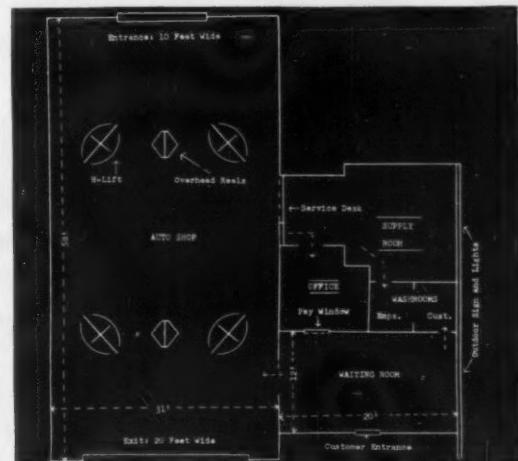
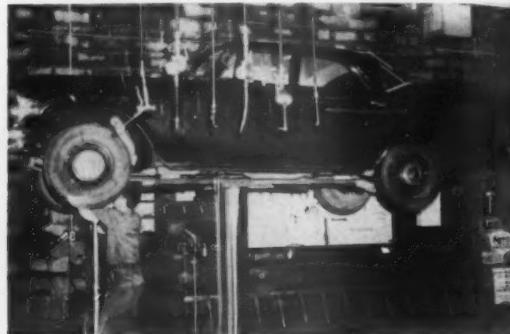
Speed is largely the product of Grease

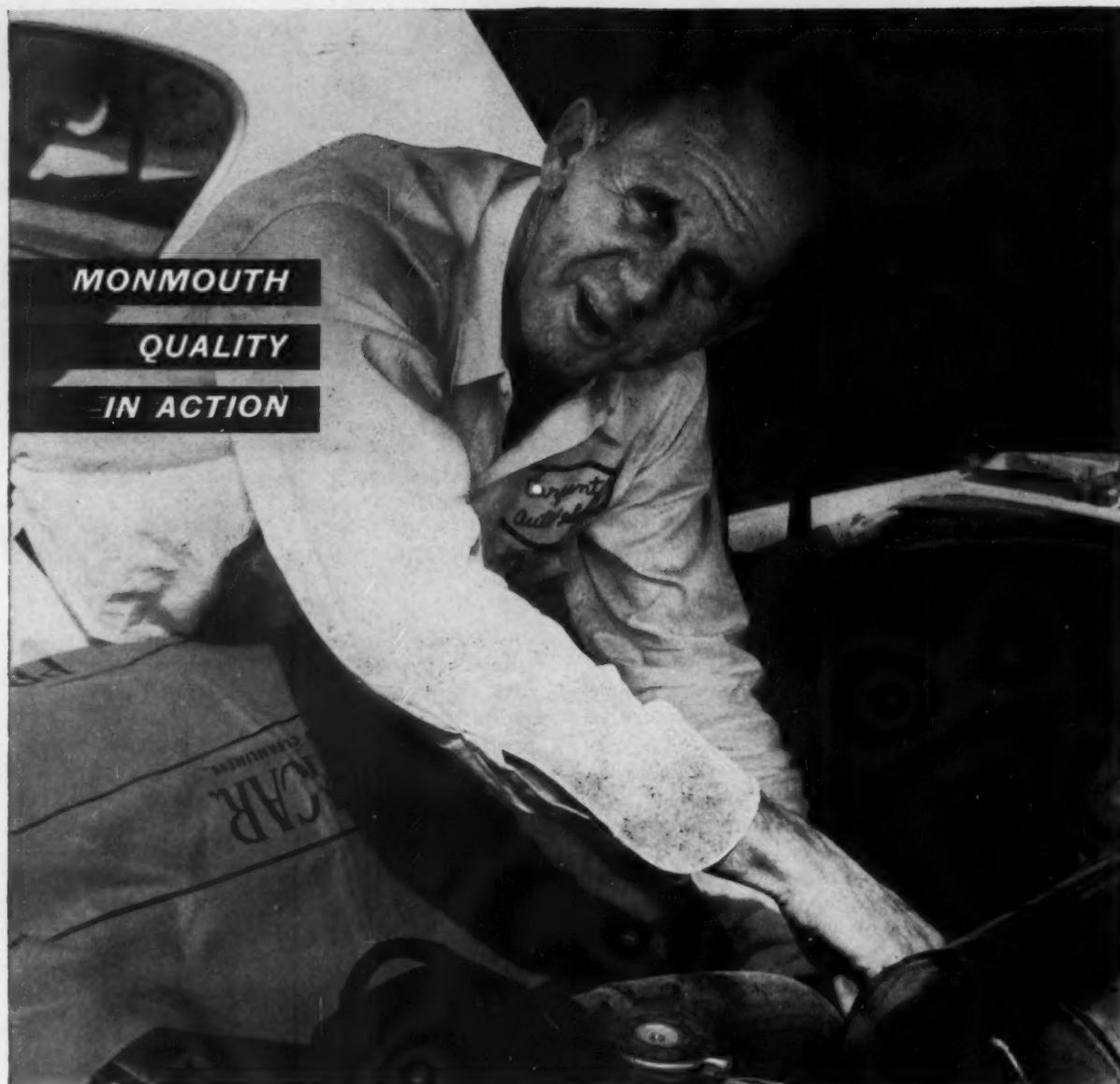
Lightning's physical layout. The shop is a spacious  $31 \times 58$  feet with four movable-arm lifts set apart at wide intervals. A series of six overhead reels—grease, oil, water, transmission oil, gear lube and air—descends from the 14-foot ceiling between the two front and two rear lifts, so they can be used for either car without wasted movement. The shop has fluorescent lights throughout to alleviate eye strain. All bulk supplies are stored in the basement.

*Continued on page 137*

Spacious layout provides for fast and efficient workmanship in this successful shop.

A series of six overhead reels are located between each pair of lifts.





## "I always use Monmouth in my racing cars . . .

. . . because my engines turn over at some pretty high rpm's and need a bearing that can take punishment. With Monmouth I race all season without bearing problems."

Mr. Carpenter has been racing modified stock cars for over ten years. In his customers' cars, as well as his own, he installs Monmouth Bearings exclusively—because he knows he can *always* depend on Monmouth's high quality.

If you want performance that pays off, use Monmouth Bearings in all your engine rebuilds. For instant service, call on your NAPA jobber. He can give you complete Monmouth service on all your engine bearing requirements.

says J. T. Carpenter  
Carpenter's Auto Service  
Waco, Texas



## MONMOUTH Engine Bearings

CLEVITE SERVICE: Cleveland Graphite Bronze • Division of Clevite Corporation • Cleveland 3, Ohio

# 97 Holley Original Equipment Carburetion and Ignition Items have been copied...



Background: Original Portrait of Mona Lisa by Leonardo da Vinci, 1452-1519

**...but no copy ever quite matches  
the ORIGINAL!**

Holley makes only authentic *originals*—and any original is hard to copy. Every Holley carburetion or ignition component you sell is as much an *original* as the part it replaces. Both are designed, engineered and manufactured to the same *original equipment* specifications, and must pass the same performance tests and rigid quality inspection. So, when you replace carburetion or ignition parts, it will pay you to use "Holley Originals". With copies there may be a question—with Holley you're sure of customer satisfaction.



11955 E. Nine Mile Road  
Warren, Michigan

Original Equipment  
Manufacturers of  
Carburetion and Ignition  
Products for Over 55 Years

® Registered Trademark

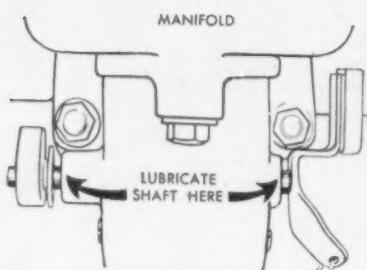
RT-45

# SERVICE MANAGERS' NOTEBOOK

*These service tips are received in most part from the car manufacturers' manuals. Read them carefully*

## On A Tune-Up Don't Miss The Manifold Heat Valve

It's recommended by every manufacturer's lubrication chart that the Exhaust Manifold Heat Control Valve be lubricated every 1000 miles. There are several good commercial lubricants designed just for exhaust components that are subject to rusting and freezing as a result of constant contact with combustion gases.



Carbon or lead salt deposits around the valve shaft may cause the valve to stick or become sluggish in operation. A valve sticking in the open position will cause slow engine warm up, excessive spitting and sluggish engine operation when cold. A valve sticking in the closed position will cause overheating, loss of power, and hard starting when the engine is hot, this can also cause warped or cracked manifolds. Sticking in either position will adversely affect fuel economy.

If the manifold heat control valve is sticking or seized in the

manifold, free it up by applying a good commercial rust dispersing solvent to the valve shaft and bushings at both sides of the manifold. Allow the solvent to soak for a few minutes, then work the valve by rotating the counterweight. Severe cases may be freed by tapping endwise on the shaft with a light hammer. After the shaft is free, another application of lubricant will assure complete penetration of the shaft and bushings.

## Automatic Transmissions Now Using Locking Dipsticks

Several of the new 1961 cars are using a locking type of automatic transmission dipstick. These can be identified by special tags or markings attached to the handle of the stick. In most cases they can be easily identified by the bayonet type of locking grooves in the dipstick cover.

When properly installed and locked in place, this feature will eliminate dust entry into the filler tube. To remove the dipstick, turn the cover and handle of the dipstick counterclockwise and lift upwards. To install, align the cover grooves with the filler tube pips; then push down and turn the cover clockwise to lock.

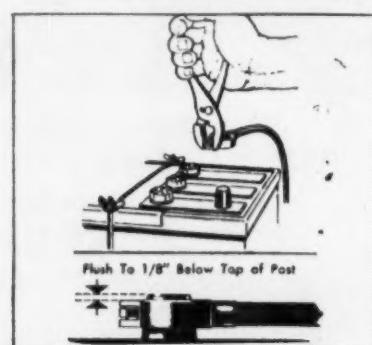
When checking the oil level, it is important that the dip stick is fully installed and locked to assure correct oil level reading.



## Spring Type Battery Terminals On The '61 Cars

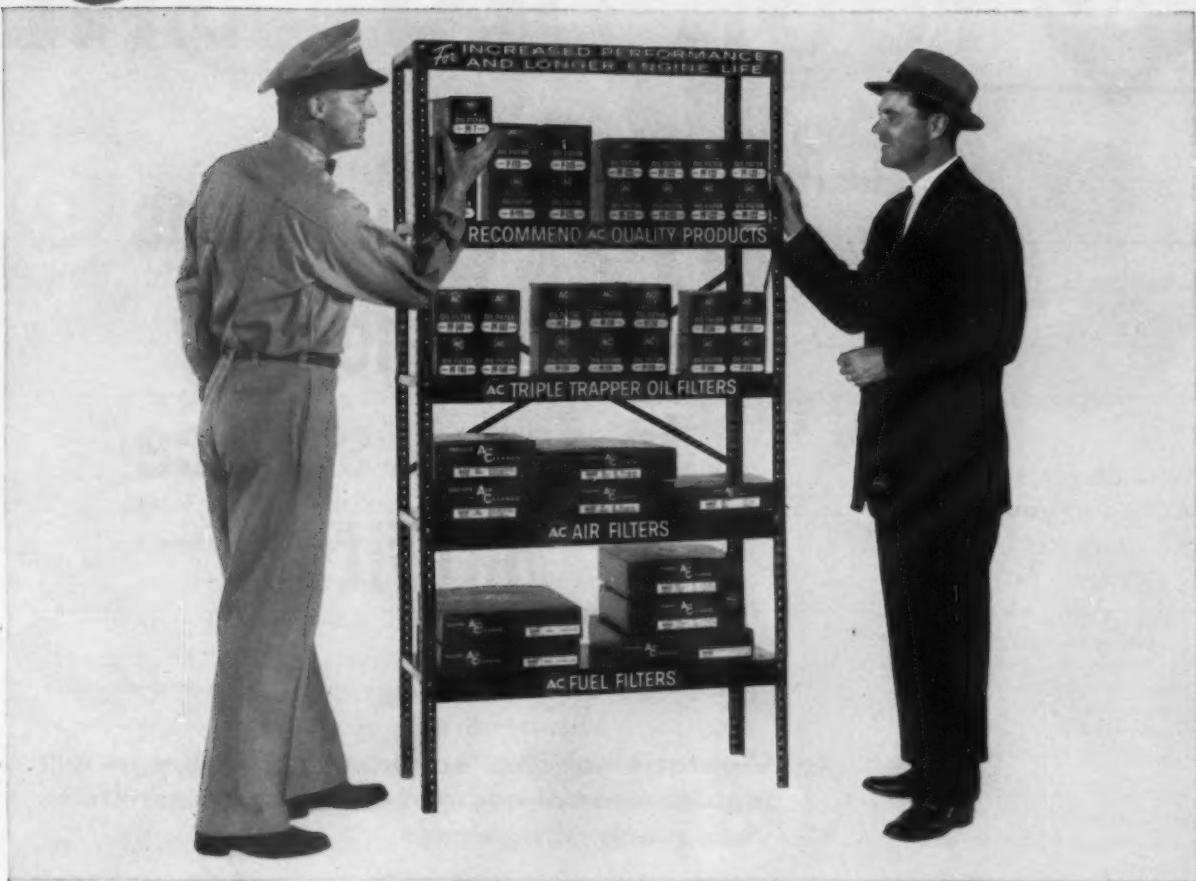
Battery cables now being used on all 1961 vehicles utilize a battery post terminal clamp that incorporates a spring steel core. The new Spring Ring terminal provides more positive clamping, and also facilitates disconnecting of battery leads.

To remove the cable terminal from the battery post, grasp the terminal tangs with pliers as shown in the illustration and squeeze until the end of the single tang is flush with the stop formed by the base of the opposite two tangs. With the clamp held open in the above manner, it can be easily lifted off the battery post.



To install the cable terminal on the battery post; hold terminal squeezed open, as in terminal removal, while pushing the terminal as far as possible onto the post. When installed, the terminal should be flush to approximately  $\frac{1}{8}$  inch below top of post. *Continued on page 158*

# AC YOUR BEST LINE OF SALES ACTION



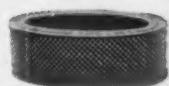
## Build your service reputation and profits with AC OIL, AIR and FUEL Filters!

As of today, start ringing up extra profits on increased sales of AC Oil, Air and Fuel Filters. They're easy to sell, once motorists understand how necessary top quality filters are to efficient engine operation. You can build your reputation and your income by establishing yourself as a filtration specialist and your shop as headquarters for AC Filters.

You'll get first-class support from AC,

too. Through major national consumer publications, AC is helping you by telling the motoring public the filter story, with primary emphasis on oil filters. As a dealer, you play an important part in that story.

There's a big market for oil, air and fuel filters. So stock up now. Watch for the AC ads. Use the AC merchandising aids. You'll get action—real black ink sales ACtion—with AC.



AC SPARK PLUG  THE ELECTRONICS DIVISION OF GENERAL MOTORS

# YOU GET ACTION WITH AC

# AC YOUR BEST LINE



tune up for  
ACtion at your  
AC dealer's

If your car has been acting a bit sluggish lately, there's a quick and reliable way to restore the live action and power it ought to have. See your AC Dealer. He's an automobile expert with a solid reputation for service.

Ask him to give your car a tune-up. You'll get ACtion! He'll check your compression, battery, coil, distributor, timing, carburetor, and especially your spark plugs—the key to any tune-up. Your AC Dealer recommends AC Fire-Ring Spark Plugs with the self-cleaning Hot Tip that heats faster, cools faster and stays clean longer. He knows they make your tune-up last longer, too.

Your AC Dealer is a good man to know. He sells an exclusive brand of ACtion, found only under the name AC. Ask for ACtion . . . ask for AC.



FIRE-RING  
SPARK PLUGS

Let AC tune-ups  
show the way  
to fresh service  
profits



Vigorous national advertising campaign will feature special column directing motorists to your place of business

There's good money in tune-ups and AC will help you get your share. Motorists are learning that it makes sense to have their cars tuned for action regularly. AC ads in leading magazines encourage the tune-up trend with a hard-sell special column which directs drivers to their AC Dealers. Remember—the best tune-up includes AC Fire-Ring Spark Plugs!

YOU GET ACTION WITH 

# OF SALES ACTION

## LET TOP QUALITY AC PRODUCTS HELP YOU BUILD CUSTOMER SATISFACTION

There's a good reason why you—and millions of satisfied drivers—get ACtion with AC. AC Fire-Ring Spark Plugs, like all the famous AC products, are the result of design skill developed over more than fifty years of leadership in the spark plug field. The self-cleaning Hot Tip is but one of the many superior product features which keep ACs delivering reliable performance longer. When you tune up for ACtion, tune up with ACs. You'll reap the benefits in unmatched customer satisfaction that pay off in repeat sales.



### OTHER FEATURES THAT MAKE AC YOUR BEST LINE OF ACTION

- AC's continuing program of research and product improvement, which ensures your customers of top quality wherever and whenever they buy products which bear the AC name.
- A broad accessory line of the finest quality products made—sold exclusively under the AC name.
- Greater volume of sales and faster turn-
- over, made possible by greater consumer recognition and acceptance.
- A ready-made replacement market. AC products are original equipment on all General Motors cars and trucks.
- Outstanding advertising and merchandising support—the finest provided for its dealers by any spark plug manufacturer.

## ORDER FROM YOUR SUPPLIER NOW

# you get ACtion with



## 80% of your customers have AC Fuel Pumps as original equipment

When you replace a fuel pump, always reach for the box with the AC bull's-eye. It's the best way to serve your customers . . . the surest way to strengthen your reputation for reliable service . . . and the safest way to ensure replacement with the fuel pump specified by the manufacturer.

The proof is in the figures. So completely have AC Fuel Pumps won the approval of specifying engineers that they are original equipment on 80 per cent of all cars, trucks, buses and tractors. Four out of five new vehicles use ACs (and they're equally efficient on marine, aircraft and stationary engines)!

This remarkable record of acceptance by the men who know automotive components best speaks for itself. For over 32 years, fuel pumps bearing the AC name have proved their ability to do a vital and demanding job under the toughest conditions. Today you can get AC reliability only under the AC name.

Protect your reputation. Install AC Fuel Pumps exclusively. They lead the field in coverage, reliability . . . and profit!

**AC FUEL PUMPS**

A C . . . Y O U R   B E S T   L I N E   O F   S A L E S   A C T I O N

## **Future Direction . . . . .**

*Continued from page 50*

**Q.—What is the future of the dealers who sold DeSoto-Plymouth in markets where there are presently Chrysler-Plymouth outlets?**

**A.—**Well, of course, all those DeSoto-Plymouth dealers still have Valiant and Plymouth—two very good lines with potential. Some DeSoto-Plymouth dealers have added the Chrysler line—where there was an open point, or where the territory wasn't covered properly. Other dealers who sold DeSoto will be offered the Chrysler line in the future. They will be dealers who want the Chrysler and who are properly located to sell and service this line of prestige cars. However, we are not going to lower the prestige of the Chrysler line by giving it on an across-the-board basis to every dealer who once sold DeSoto. This is not fair to the Chrysler line nor would it be fair to Chrysler dealers. It would clutter the market and reduce dealer potential.

**Q.—In recent years, the retail automobile business has produced one of the lowest net profits (either as a per cent of sales or return on investment) of any business. Do you think the future will show any improvement? Why?**

**A.—**As automobile retailing progresses, each dealership is learning more and more about good business management. We at Chrysler feel it is the responsibility of the dealership to make every effort to sell at volume and at a profit. We also feel it is the company's responsibility to help our dealers reach these two objectives. Consequently, we have a number of skilled business management specialists who work with dealers to get their volume and profits up. Everything we do in market alignment, in developing market areas, and in sales and merchandising programs is designed to help the dealer sell and sell at a profit. I think if each dealer would take full advantage of services offered by the factory in business management and sales and merchandising programs the profitability of dealerships would increase.

**Q.—Do you believe that the NADA Task Force will prove effective or, are they asking for help in solving problems that the dealers, themselves, created?**

**A.—**We have met with the NADA Task Force. We have talked at length on various matters. It is a good thing for the dealers and the companies to discuss their mutual prob-

lems in this fashion. We are considering their suggestions, and have made some moves—particularly in the area of distribution and inventory control. However, this is not a one-way street. It is going to take work by the dealers on many of their own problems. A manufacturer can only go so far in helping the retail end of the business. Retail dealers also have the responsibility to fulfill their own business obligations.

**Q.—There has been talk of licensing some independent garages as factory warranty stations in certain areas. Won't this create competition for dealer shops, unnecessarily?**

**A.—**We have had only one or two franchised service operations. We tried it in New York where the population of Chrysler Corporation cars was very heavy, and there was a lot of driving into Manhattan from suburbs. People wanted a place to have their car worked on during the day. So we opened a franchised service facility to handle this. Primarily, we feel it is the obligation of the franchised new car dealer to offer full and complete service facilities for his customers in his area.

**Q.—What is the reaction of your dealers to the election of Mr. Townsend as president?**

**A.—**Mr. Townsend is well known by our dealers. He is very familiar with their retail sales operation and their performance. In the last few months he and I have visited with some 4,000 dealers in 17 cities across the United States.

Mr. Townsend and I have both stated our mutual intention of helping our dealers move up to a new and highly successful place in the automotive industry. We are going to do that. I think our dealers understand that we mean it.

From the telegrams and expressions, not only from individual dealers, but from dealer associations and dealer councils, our dealers are solidly behind Mr. Townsend. They feel that the new direction of the company is now solidly established.

**Q.—And what is that direction?**

**A.—**All of us here will continue to do everything possible to help dealers increase their retail sales volume and profit position. Our cars and trucks are competitive in every way. Our quality is excellent. Our engineering is outstanding. Our 1962 cars and trucks will be great. If our dealers will now devote all the talent we know they possess to retailing cars and trucks, the future will be very rewarding.

# Win



# RAMCO

**3 MONTHLY CONTESTS!**

**600 CHANCES TO WIN!**

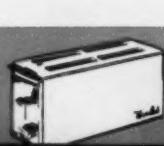
Someday soon you may get a "Winning Ring" on the phone, with the news that you have won your choice of a 1962 Corvair Monza or Rambler American Station Wagon—plus a flight to St. Louis and expense money to drive your prize home! The Ramco jobber's man who serves you will win a duplicate prize.

These are the top prizes in each of three big monthly contests. You compete with entrants in your own area, can enter each contest many times. You can get free official entry blanks from your Ramco jobber or jobber's representative. Each entry competes for 200

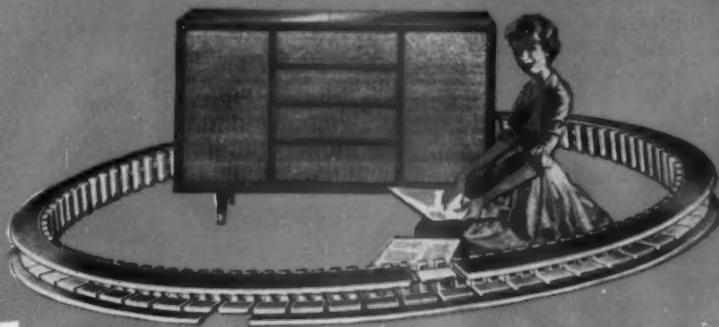
prizes in one of the three monthly contests.

**HERE'S HOW:** Simply complete and mail your entries, following the simple rules on the blank. Use your judgment and knowledge of the automotive service industry to answer the questions shown here. Your skill in matching the importance of these six Ramco C-9 features to the order in which they are rated by Ramco engineers, plus your knowledge of the ring business in estimating the total number of entries received nationally, can win you big prizes. Call your Ramco jobber today!

**CONTEST VOID IN STATES WHERE TAXED OR PROHIBITED BY LAW.**



# one of six 1962 compacts



12 stereo  
consoles

or one of 582 other  
valuable prizes

# "winning ring" contest

RANK THESE RAMCO FEATURES  
In order of importance (1, 2, 3 etc.)

Fast  
Installation



Oil Flushing  
Action



Conformability

No Rail  
Malfunctions

Side Sealing

Less Pressure,  
Less Wall Drag

HOW MANY ENTRIES?

Tell us how many total entries you think will be made in the contest during the month of your entry. (Clue: Industry data shows that an average of 350,000 sets of replacement piston rings are sold each month through automotive-parts jobbers.)



**RAMCO**

rings you on the phone

Every "Winning Ring" winner will be notified by phone. That's your chance to make a choice of prizes in your winning category (described on entry blank).

Contest No. 1 closes Oct. 10.      Contest No. 2 closes Nov. 10.

Contest No. 3 closes Dec. 10.

Postmarks on entries will control the particular contest in which your entries compete. Enter now and often! Call your Ramco Jobber today.

**RAMCO**

MODERN POWER  
PISTON RINGS

RAMSEY CORPORATION • ST. LOUIS, MISSOURI

A subsidiary of Thompson Ramo Wooldridge Inc.



## Basic Electricity III . . . . . Continued from page 77

in that wire. We also stated that if the wire were held stationary and the magnetic field were moved across the wire a current and voltage would also be produced in the wire. This is what happened in the ignition coil. The collapsing magnetic field cuts across the stationary secondary wire and a very high voltage is induced in the secondary coil. This voltage is figured at one volt per turn of the secondary coil, thus, 21,000 turns would give 21,000 volts. The high voltage is required because the spark must jump a gap at the spark plug which is under very high pressure. This pressure resists the voltage and thus requires a good push to get the spark across the gap to ignite the fuel charge and start combustion. The high tension ignition coil does just that.

### Condenser Action:

A condenser, or capacitor as it is sometimes called, is a very important part of the ignition system. The duties of the condenser or capacitor is to prevent arcing of current across the breaker points. Along with this function, the condenser also aids in the collapse of the magnetic field of the coil. A condenser can be compared to a shock absorber on a car or an air column in a water piping system to prevent water hammer. It is a static device for storing electrical energy. When the ignition points are opened, the electric current (electrons) is flowing freely and at very high speed. The velocity of the electrons causes a condition of arcing at the points. This condition, if permitted to continue, would soon burn the points completely. The condenser or capacitor steps in to save the day (points that is).

A condenser is made up of two layers of aluminum or lead foil, each of them about three feet long. The layers of foil are insulated from each other by wax coated paper. All of this is rolled into a nice tight roll and put into the metal container. One end of the foil is grounded to the can container, the other end is attached to the condenser wire. Condensers are

wired across the ignition points (see sketch of ignition system). When the points are opened, the electrons will take the path of least resistance and flow into the foil strip of the condenser on the side to which wire is attached. When the plate (foil) absorbs all the electrons it can hold, the electrons will then have built up a voltage higher than the primary voltage. This high voltage (250-500 volts) then discharges back through the primary windings in the reverse direction helping to collapse the magnetic field much more quickly.

This voltage on the rebound travels back through the primary windings to the ignition switch, the ammeter, wire to the starter switch, then through battery to the ground of the chassis. The electrons then follow the ground circuit to the opposite side of the condenser until the condenser foil surface charge reaches a maximum voltage potential. With a high voltage charge on the grounded side of the condenser foil, the electrons discharge back through the system to the primary side again. This oscillating charge and discharge of electrons takes place in a millisecond of a second, gradually tapering off in voltage to zero in time for another point opening. Condensers can be tested by use of a special tester or with an ohmmeter or 110 volt test lamp. With a condenser or capacitor tester these units can be tested for leakage, break-down, capacity and series resistance in the condenser circuit.

An ohmmeter is used to check for leakage. Condensers should check out at 20,000 Ohms minimum. Condensers for all practical purposes are actually open circuit devices. Current or voltage will not pass thru them. With a 110 volt AC test lamp they can be charged and the pigtail touched to the metal can for a spark. If a spark is evident then the condenser is generally satisfactory. If the test light stays lit, then the condenser is shorted or has excessive electron leakage. Capacity can only be checked by a condenser tester which reads in microfards (term applied to measure the condenser capacity to hold electron charge).

## You Tell Me . . . . .

### Continued from page 55

headlights, which give you the impression at night they are a long way down the road, but they cause a lot of misjudgement at night. Also a lot of these late model cars with the cross frames are very unsafe, as they have no side rails and a side lick at the front door and you have a fatality. After all, a floor pan isn't very strong and that is all there is until you get to the middle of the car.

I had an elderly lady come into my shop some time ago who had the rear bumper and rear deck lid demolished. I figured she had been hit at a stop light. Lo and behold, she was traveling on the super highway in broad daylight and someone just climbed the back of her car. I asked her how fast she was going, she said pretty fast—about 40 m.p.h.

The Texas law states you need headlights properly focused; tail lights, stop lights, a license plate light, horn audible for 200 feet, windshield wiper (needed only on driver's side), brakes which have at least 2-in. of pedal and do not pull and will stop in 20 feet at 30 m.p.h. That is roughly it. Now there are not many cars which cannot pass. It doesn't matter if your windshield is all busted. If you have tires so thin that they are a menace, a tie rod about to fall off, steering gear so rough it locks on turns—that will pass.

Many wrecks have been caused by (an unlit) license plate. Also, the law is too infrequent. The period runs from September till April 15. In other words, a car could be inspected September 1, 1961 and the sticker would be valid till April, 1962. Now, anything can happen to a car in that amount of time. Another thing, a car sustaining a wreck of over \$25.00 is supposed to have the sticker defaced and be reinspected. After all, a fender and headlight might be replaced and not focused or might even have the wires crossed, yet I talked to several patrolmen who did not even know this law.

I don't know the answer to this safety law problem, but the present law stinks. In Chicago many years

Continued on page 153



## Will he stop in time?

Did you know that, although it takes ONE MINUTE for a 100 horsepower engine to accelerate from 0 to 60 mph, brakes must be capable of decelerating from 60 to 0 mph in SIX SECONDS—equivalent to 1000 horsepower.

American Brakeblok—producer of America's safest, quality brake lining—has been working closely with highly skilled engineers of the automobile industry who are constantly seeking a brake lining that will stop a car faster and with greater safety, for thousands of miles longer.

Its research center, staffed with heat, wear

and friction specialists and equipped with the most modern development facilities, is constantly developing a wide range of materials that give automotive designers greater freedom in drawing specifications.

These materials, thoroughly tested and proven, are available to meet the most rigid braking requirements of modern automobiles and trucks. Do your customers a real service—by making their driving far safer—install American Brakeblok, America's SAFETY brake lining. Riveted and bonded exchange—from your NAPA Jobber. Call him now!



# AMERICAN BRAKEBLOK

P. O. BOX 21 • BIRMINGHAM, MICHIGAN

# Big DuPont Ad campaign

"DU PONT SHOW OF THE WEEK"

featuring top stars, top stories, on the best viewing night—  
Sunday—starting September 17. Commercials on "Zerex"  
and "Telar" will be seen by millions of customers for eight consecutive  
anti-freeze weeks during the peak of the anti-freeze season.

## IT'S NEW...IT'S GREAT...IT'S THE DU PONT SHOW OF THE WEEK

DURING THE ANTI-FREEZE SEASON:

- |                |                  |
|----------------|------------------|
| ★ GROUCHO MARX | ★ GEORGE BURNS   |
| ★ PEGGY LEE    | ★ PAUL WHITEMAN  |
| ★ VIC DAMONE   | ★ STEVE LAWRENCE |
| ★ COUNT BASIE  | ★ EYDIE GORME    |

★ AND MANY OTHERS

WILL HELP YOU SELL ZEREX® and TELAR®

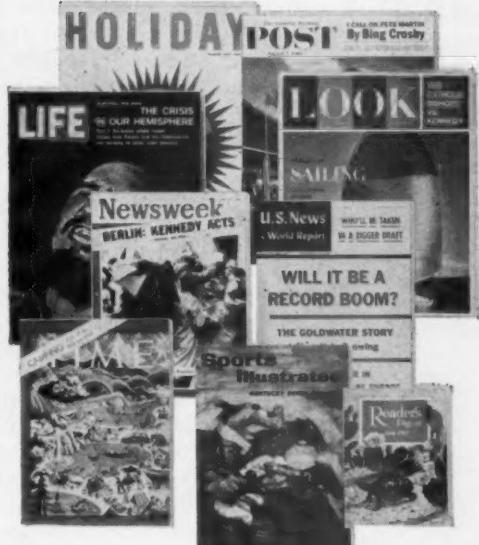


BETTER THINGS FOR BETTER LIVING... THROUGH CHEMISTRY

# to sell TELAR® and ZEREX®

## THE BIGGEST MAGAZINE PROGRAM

In Du Pont anti-freeze history—Life, Reader's Digest, Look, Post, Time, Newsweek, U.S. News & World Report, Holiday, Sports Illustrated!



## BILLBOARDS WILL BLANKET THE COUNTRY

To remind your customers while they're behind the wheel that it's time for Du Pont ZEREX again.



## FREE OFFER:

Eye-catching A-frame poster, telling motorists you have TELAR in stock. You can get one or two of these point-of-sale boosters free by filling out the coupon below and sending it in. Do it now! Get a fast start on fall anti-freeze sales.

## RADIO, RADIO AND MORE RADIO!

The nation's top radio stations throughout the country are on Du Pont's radio schedule—the biggest, broadest radio coverage yet. And commercials are scheduled during the peak driving hours for each market.



## THE DUPONT DISPLAY KIT

starts to sell the minute it goes up. Includes window streamers, banners, protection chart, price bullet, instruction sheet—plus TELAR replacement certificates. Get this kit free from your Du Pont anti-freeze supplier.



Mail coupon to:

E. I. du Pont de Nemours & Co. (Inc.), Anti-Freeze Products Section, Dept. M.  
Nemours 2420, Wilmington 98, Delaware  
Send me  2 large posters for TELAR Anti-Freeze  
and Summer Coolant. (Circle number you want.)

Your name \_\_\_\_\_  
Street \_\_\_\_\_  
City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

## Review of Test I—Basic Electricity

**W**E wish to thank our many readers who took the time to give us their most welcome comments at the bottom of Motor Age mechanics training course test #1. We are most gratified by your response and you can rest assured we will do our very best to make it the type of course most of you would like to have.

One of the test questions that a majority answered incorrectly was the one that we thought was the simplest. It was #1; Current will not flow unless there is: a. An open circuit b. A closed circuit c. A short circuit. The correct answer is (b) A closed circuit. So many of you answered (a). Perhaps some of you may have been thinking in terms of a plumbing system, where in opening a valve, water is allowed to flow. In an electrical circuit, electrons will not flow in an open circuit. That is, the circuit must be connected or as the electrical term indicates "closed" in order for the electrons to flow. At the shop, your drop light goes out when you "open" the switch and it comes on when you "close" the switch. So keep in mind when talking electricity; a closed circuit means that current (electrons) will flow, while an open circuit means a broken or disrupted circuit and current will not flow. However, those who answered (c) were partially correct because current will flow in a short circuit because the electrons are given a path through which they can move. This of course is an abnormal type of circuit and isn't used in regular automotive wiring practice—it is a closed circuit so current will flow.

The other question that gave us some trouble was #10. Atoms having four or more electrons in their outer orbits are:

- a. Neutral b. Positive c. Insulators

The correct answer is (c) the next nearest correct answer is (a) and (b) is incorrect. The relationship of the electrons to the atom seems to have been misunderstood by the writers of some of the tests that we received. Perhaps, we didn't dwell upon the subject in sufficient length.

For reasons of clarification, let's go over this subject again.

All atoms are made up of Protons and Electrons. Protons are positively charged electrical particles and Electrons are negatively charged electrical particles. The nucleus of the atom contains other particles called neutrons. These particles have neither a positive nor a negative charge and so are considered neutral. The protons are centered in the nucleus along with the neutrons. Atoms have several other particles that have recently been discovered as a result of the current intensive scientific study of the atom; these however are unnamed as yet and their function is not fully understood at this time. Each atom will always have an equal number of Protons and Electrons. The protons have a greater mass than that of the electrons and they are electrostatically attracted to the

### Basic Electricity Test III appears on Page 75 in this issue of Motor Age

nucleus containing the Neutrons. The protons and the neutrons make up the bulk of the nucleus and are responsible for the weight and mass of the atom. The electrons, being of very much lighter mass and weight, rotate around orbits at varying distances from the nucleus. Just as the planets are set at various distances from the sun and rotate in their orbits. The volume of the atom consists largely of "space." Similar except for size to that of the universe in which we on the Planet Earth live. There is so much space in a single atom that an electron could pass completely through an atom and not touch a single proton or electron. That is if it were passing through a moderate speed (approximately the speed of light,

186,000 miles per second). However, if accelerated by some outside magnetic force, (an electro-magnet) it can collide with other electrons and protons which will create a change within the atom by adding or removing some of its electrical charges.

The electrostatic forces within the nucleus tend to attract the whirling electrons of the atom towards the nucleus. This attraction is counterbalanced by the action of the centrifugal force exerted upon the whirling electron. The effects of these two forces controls the amounts of electrons found in the extreme outer orbits of every atom. The greater the binding effect of these forces the greater the number of electrons in the outer orbits. The greater the number, the harder it is to move the electrons from their orbits. As we stated in lesson #1, Electricity is the flow of free electrons. The name given to the electrons in the outer orbits is free electrons provided the number in the orbit is four or less. Any outer orbit containing more than four electrons would indicate a greater force retaining them within the orbit. These are not called free electrons but just electrons. Any element having four or more electrons in its outer orbit is considered an insulator or non-conductor of electricity because of the difficulty of free electron flow. An element such as glass, rubber, wood (dry), and some plastics have more than four electrons in their atomic outer orbits. These materials make excellent insulators or non-conductors of electricity. Elements such as copper, steel, silver and aluminum are excellent conductors of electricity because they have less than four free electrons in their outer atomic orbits. Electrons can be drawn away very easily. An interesting condition arises when the outer orbit of a material contains only four (exactly) electrons. Germanium is just such an element. With just four electrons in the outer orbit it is neither a good insulator nor a good conductor. It is considered to be a neutrally charged element. If you will refer to the January 1960 issue of MOTOR AGE on page 105 and 110 you'll find how Germanium is altered for use in Transistors by combining it with other elements to give it electrical conducting properties.

# WHEN MOTOR OIL FLOWS THROUGH THIS NEW FRAM “WEAR-GUARD” OIL FILTER



## UP TO 40% MORE ENGINE-KILLING SLUDGE IS TRAPPED!

Tests using radioactive tracer techniques proved it! An exclusive scientific breakthrough in the construction of new Fram "Wear-Guard" Oil Filters traps up to 40% more sludge than any other filter tested. Give your customers the finest filtration developed by modern technology: stock and sell famous Fram "Wear-Guard" oil and air Filters. Fram Corporation, Providence 16, R.I.

# FRAM

"WEAR-GUARD" FILTERS

## Give Your Business A Lift . . Continued from page 89

isn't polite to point, but it's profitable." Most customers want you to point out to them what is wrong with their car. How will they know that a shock is leaking, a transmission seal is weeping, or drive shaft universal joints are dry unless you, their service specialist, point a finger at the trouble.

Get the car up on a lift so they can see for themselves the need for repair or replacement. Most customers want to see the underside of their car. Ever watch the snoopers on Saturday morning easing themselves under the car while you're working it over on the lift? Don't give 'em a squirt of oil accidentally so they won't bug you.

Put this natural human curiosity to work for your own best interest. Guide them towards things you wish to call to their attention. Most of these snoopers aren't checking on your work, they're just taking advantage of the opportunity to investigate the underside of the second biggest investment most of them ever make. Form the habit of using your head when you use your lift. Remember, if you show 'em, you can sell 'em.

Currently, new car buyers are being sold on the lubeless car. This may eventually condition them to the belief that they need never visit their service man except in case of a malfunction that is easily recognized. This possibility is one that we, as automotive service technicians, must be prepared to meet head-on.

Help in educating the motoring public to bring their cars in regularly is being offered by many organizations. One of these is the Automotive Lift Institute, Inc., made up of a number of equipment manufacturers who have detected this trend. The secretary is David Laine, 366 Madison Avenue, New York 17, N.Y.

They are establishing a program using the symbol shown on this month's cover of MOTOR AGE. The program will urge car owners to have their cars lift-serviced every 1000 miles. They will stress the advantage of lift servicing at the owner's regular repair shop for safety, economy and comfort. They will tell owners that service doesn't stop with a lubrication and

oil change. As long as the car is being operated, all the components that make up the modern motor car also wear and require periodic inspection to forestall breakdown. Widespread use of this Lift Institute symbol will be one of the many helps that the industry will give you to help you get more business.

Are you prepared to cope with the customer's demand for lift service inspection? Car owners will be reminded every day to get their cars up on a lift and have them inspected every 1000 miles. Don't get caught without enough



lift capacity to take care of the extra business this new program will create. That extra lift you need now will pay for itself quickly in the added jobs you can get. A few of the services you can offer that can be quickly rendered on a lift are:

### Car-Saving Service

- Oil changes
- Lubrication
- Oil filters
- Packing wheel bearings
- Undercoating
- Chassis tightening

### Repair And Replacement Service

- Universal Joints
- Differentials
- Rear axles

### Suspension systems

#### Clutches

#### Automatic transmissions

#### Engine bearing replacement

#### Oil seal replacement

#### Motor and transmission mounts

### Safety Service

#### Brakes

#### Shock absorbers

#### Front and rear springs

#### Mufflers and tailpipes

#### Wheel balance and alignment

#### Tire changes and rotation

You can do every one of these jobs and others more easily on a lift, because you work more comfortably. You can see more accurately at an eye-level working position, and the car can be raised or lowered fast. You can do all these jobs in less time on a lift—you can handle three jobs, on the average, for every one job the old way. Figure out the pure profit going into your pocket!

Don't run the risk of being "under-lifted." More and more of your customers will expect you to go over their cars on the lift every 1000 miles. You need enough lifts and power tools to satisfy them that you are able to do the work they need in the fastest possible time. Time is money in your bank, and any piece of service equipment that saves time earns money for you. Such equipment earns it for you day in and day out without a squawk. This kind of help we can all use—so let's use it. Make it a point to train yourself and your men to show your customers what the underside of their car looks like. Don't forget to point even though it's not polite, because this points your way to more service business and that's profit, brother—more profit and more money for you.

NOTE: There are 61.5 million cars in operation today that need lubrication regularly. Despite the current trend, there is much to be racked up. Use your head when you use your lift.

**Editor Frank Tighe**

**tells how to**

**"Grease the Ways to Profit" page 88**

*Loaded with advantages at no added cost!*

# New HEIN-WERNER Model M 2-ton Hydraulic Service Jack

with long chassis--lifting height of 25"  
only \$157<sup>00</sup> suggested dealer price

Model M  
offers extra features for  
same price of  
standard 2-ton jacks  
now on the market:

properly balanced for  
easy handling, and  
reduced pumping effort

handle has full 90° pumping arc and three handle locking positions for easier spotting

ram overtravel prevented by positive stop in hydraulic unit — another H-W engineering exclusive

roller bearing front wheels; ball bearing casters

All this plus the safety of a forged steel swivel saddle, malleable lifting arm, and flanged-steel side plates to increase strength with less weight. Get the most for your money — go modern with Model M. Your H-W Jobber has full facts now, or write us for details.

safety valve to protect jack from overload damage

quick snap-out cover plate to provide access to all grease fittings — jack doesn't need to be turned over to reach lubrication points

lifting height to 25" from a low of 4½"

dual pistons with automatic cut-off valve for load contact in two strokes

long-chassis design for plenty of pumping room



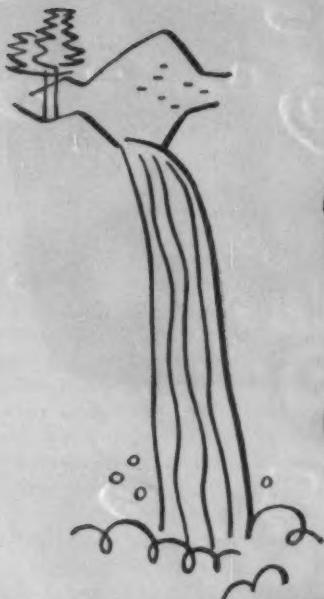
## SPECIFICATIONS

Capacity	2 tons
Chassis Length	47"
Handle Length	46"
Saddle Low Point	4½"
Saddle High Point	25"
Shipping	150 lbs.

**Hein-Werner**  
CORPORATION  
WAUKESHA, WISCONSIN



# They don't sludge or corrode



Because American Hammered stainless steel oil rings don't sludge or corrode, there is always a free flow of oil back to the crankcase • Stainless steel is a superior oil ring material because it resists the etching and pitting action of the gases of internal combustion engines. The stainless steel stays smooth and clean. No chance for carbon build-up • American Hammered stainless steel oil rings control oil—never pump it. American Hammered, Automotive Replacement Division, Sealed Power Corp., Muskegon, Michigan.

U.S. Pat. No. 2,789,872

## AMERICAN HAMMERED



*stainless steel oil rings*

## New Volume Concept . . . . . Continued from page 117

A car enters through the back door and it is driven onto a lift by either Mr. Hand or Harold Belles, service manager, thus insuring that it remains clean. Two mechanics work on each auto at one time; one does the oil and lubrication and the other makes the basic safety inspection which includes checking lights, tires, battery, water level coolant, transmission fluid and windshields. The whole job takes between 15 to 20 minutes.

In addition to the basic check, Grease Lightning offers various seasonal specials. The 12-point spring special, which cost \$9.95, included the following additional services: New oil filter, radiation drain and refill, radiator hose check, installation of anti-rust, cleaning of air filter, examination of fan belts and installation of summer tires.

Other standard services include brake adjustments, wheel balancing, headlight adjustment and replacement, tail pipe adjustment and fast tire work.

"We're putting a hard sell on the idea of preventive maintenance, but a soft sell on the individual services," Mr. Hand explains. "In other words, we push the value of an oil-lubrication job and safety inspection every 1,000 miles, but the only services we give are those the customer asks for or is advised to get. This attitude pays off in trust and good will."

Grease Lightning can handle up to 100 cars a day, but breaks even when it gets 40-50. "Business often runs in spurts," the owner states, "but we generally get at least 40 a day and usually more." The shop is open Monday through Saturday from 8 A.M. to 8 P.M. and Sunday from 9 A.M. to 1 P.M.

The Grease Lightning concept, building and original name were devised by Dick Hand who secured a long-term lease on property along the "auto row" section of heavily-traveled Route 5. He and an architect designed the layout so it would be functional but not overly expensive.

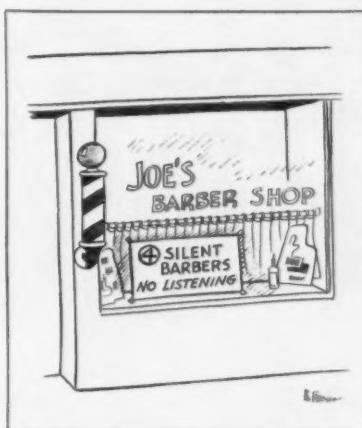
Division of labor is a major factor in the successful operation of the firm. Mr. Hand handles the office-sales-public relations work,

while Mr. Belles directs the auto work and supervises the four mechanics.

"When servicemen have to be businessmen as well it cuts down on their speed and efficiency in repair work," the owner says. "At my shop the mechanics don't have to handle any office transactions except when I'm out—and then it's only routine work."

Because the mechanics concentrate on auto work, this in turn allows Dick to spend a part of each day out of the shop soliciting dealer business. And he can do this with complete confidence thanks once again to the unique layout of Grease Lightning.

A heavy glass bay window divides the office from the waiting room so



the cash register can be reached only through the supply room behind the service desk. Therefore the mechanics can work at ease without having to keep an eye on the office.

Although motorists make up the biggest part of Grease Lightning's business, at least one-third and more each week consists of vehicles from used and new car dealers and owners of small taxi and truck fleets.

Dick explains, "Used car dealers like us because we offer fast and complete service on all makes and models—on a discount basis. We don't do any customer labor for the new car dealers since they want that business, but we offer them incredibly fast tire work. Once we

did 10 tires on a trade-in in just 25 minutes.

"We also get overflow adjustment work from small fleet accounts because they get the advantage of a modern shop that gives personalized service efficiently. But if you want this work you've got to spend a good share of your time soliciting and selling accounts on it. That's why our dealer business is zooming upward."

Undoubtedly the outstanding attraction from the customer standpoint is the beautiful 12 x 20-foot waiting room which could compete with that of any doctor. It features comfortable leather chairs, newspapers and magazines, children's toys, a water cooler and a large television set.

The room is separated by glass windows and door from the auto shop. "It's well worth the investment," Dick says. "Instead of getting fidgety or full of grime, a housewife can watch her favorite TV show while her youngster plays with the toys. When the job is done she's in a happy, relaxed frame of mind, and you can be sure she won't forget that our shop had a comfortable lounge."

Next to the waiting room is a sanitized washroom for customers only. It never gets full of dirt because the employees have their own washroom. Cleanliness is also an important consideration in the shop itself which is swept three or four times a day and mopped and squeegeed once daily.

The best promotion not only draws new customers but keeps the old ones coming back, so the firm begins its followup right with the original repair order.

Hand or Belles calculate the customer's average mileage per month and write this figure with his name and address on a printed notation attached to the office copy. When the customer reaches another 1,000 miles the notation is detached and mailed to him. The reminders are listed according to date so they can easily be taken from the file in an orderly method.

The shop's top advertising medium is television because it has the spot before a popular Sunday bowling tournament program. Newspaper advertising is used extensively and radio spots are bought.

*Continued on page 182*

# 1961 New Passenger Car Registrations\*

STATE	Buick	Cadil-	Chev-	Chrys-	Comet	Dodge	Ford	Im-	Lin-	Mer-	Olds-	Ply-	Per-	Ram-	Stude-	All Others		
																U.S.	Foreign	Total
Alabama.....	June 334	89	2243	72	229	178	1512	9	17	117	301	254	354	435	42	3	427	6616
6 Mos.	1700	594	10876	423	1091	1186	8137	53	143	567	1595	1388	1936	1926	277	32	2676	34624
Alaska.....	June 11	2	104	18	27	24	122	3	12	15	66	13	36	4	5	105	567	
6 Mos.	65	49	531	57	142	59	432	13	9	52	64	223	98	158	37	7	374	2370
Arizona.....	June 139	71	872	52	157	107	728	27	92	142	190	193	271	45	.....	247	3338	
6 Mos.	658	517	4771	225	907	758	3828	35	148	421	880	978	946	1414	367	4	1233	18089
Arkansas.....	June 72	43	617	18	76	38	510	3	7	28	93	77	98	101	11	1	118	1908
6 Mos.	816	421	6237	213	624	5131	1046	26	82	418	1108	813	1243	1024	201	20	985	19988
California.....	June 2833	1560	14724	666	2164	1887	12878	68	564	1163	2349	2116	2976	3430	633	6	5577	55604
6 Mos.	12000	8512	71832	3531	10796	11046	68320	585	3722	5941	12743	12743	16212	16211	3901	122	27325	287632
Colorado.....	June 222	101	1609	89	149	189	1235	7	25	105	254	276	297	346	77	9	285	5267
6 Mos.	1205	604	8236	486	739	1077	6841	65	183	676	1496	1588	1707	1805	587	46	1806	29227
Connecticut†.....	June 390	274	2457	183	429	360	2063	19	69	236	550	564	777	849	246	15	1148	10769
6 Mos.	1565	1098	9659	735	1720	1443	8277	78	27	947	2207	2665	2676	3806	985	60	4660	43206
Delaware.....	June 68	35	567	20	37	50	379	7	30	70	63	83	71	101	1	10	159	1598
6 Mos.	402	245	3122	141	214	421	2339	11	37	189	468	44	574	464	68	8	603	8726
Dist. of Col. ....	June 107	77	732	61	118	584	2	26	76	148	189	166	141	28	3	232	2781	
Florida.....	June 750	517	4512	179	696	530	4282	35	113	285	814	748	875	966	101	8	1558	18969
6 Mos.	4477	3611	24047	982	3602	3295	2277	276	770	1615	4778	4601	5162	5943	979	78	11078	98490
Georgia.....	June 348	129	2399	83	238	184	2010	10	12	112	341	339	605	344	62	4	706	7898
6 Mos.	2430	1021	15330	617	1715	1728	14657	78	156	851	2454	2805	4213	2131	613	73	5294	56164
Hawaii.....	June 59	16	361	17	45	55	387	.....	5	11	73	144	93	82	14	.....	184	1506
6 Mos.	300	96	2088	125	224	260	1964	4	28	62	326	880	474	344	63	4	1115	8361
Idaho.....	June 115	47	539	33	66	87	403	9	9	54	124	77	130	195	45	.....	142	2075
6 Mos.	565	274	2156	172	332	499	1787	43	48	273	553	375	700	899	200	9	764	9649
Illinois.....	June 2142	924	11480	569	636	1093	7217	58	142	735	2051	1332	2641	2135	308	46	1532	35261
6 Mos.	11194	5848	58042	3151	4122	6185	37964	427	1016	4063	11700	8892	15122	11246	2065	529	7850	160456
Indiana.....	June 1332	447	8679	382	484	1046	5254	38	82	451	1526	857	1500	1236	452	17	988	2289
6 Mos.	4130	1721	20498	1162	1457	3555	10850	144	327	1085	513	340	5021	3931	1793	160	3285	73173
Iowa.....	June 368	106	2377	124	213	347	1827	8	15	222	387	332	463	582	72	3	252	7788
6 Mos.	1962	693	1948	632	912	1789	9625	43	59	1125	2123	206	2453	2779	474	30	1228	39966
Kansas.....	June 413	144	2335	144	209	314	1810	19	26	179	423	407	409	447	74	6	349	7688
6 Mos.	2244	795	11705	620	901	1703	8856	69	155	925	2339	2014	2361	2149	363	33	1767	35899
Kentucky.....	June 280	75	1894	51	142	165	1531	4	12	95	308	244	300	335	32	.....	330	5798
6 Mos.	1425	488	8294	261	696	851	7095	33	61	474	1611	1538	1671	1893	219	22	1688	28020
Louisiana.....	June 249	105	2093	101	215	189	1898	13	20	116	445	219	426	334	44	2	413	8862
6 Mos.	1478	758	11778	805	1213	1064	9822	60	140	704	2270	1228	2364	1647	385	28	2090	37674
Maine.....	June 122	44	796	48	110	140	729	6	7	44	113	173	178	220	37	.....	259	3028
6 Mos.	510	240	3822	207	469	555	3301	29	36	278	516	782	775	1097	225	5	1262	14232
Maryland.....	June 435	163	3647	149	450	474	2678	8	35	213	445	639	561	644	89	3	763	11416
6 Mos.	2088	963	11710	490	1806	2561	13889	57	179	936	2389	2940	3397	678	56	3569	57876	
Massachusetts.....	June 932	303	5407	283	674	760	4746	19	60	302	1060	1008	1039	1538	203	26	1616	19976
6 Mos.	3830	1986	23480	1467	2903	3780	20388	125	387	1449	4745	5098	4537	7322	1185	134	7411	90150
Michigan.....	June 1672	649	5342	343	1235	534	7246	38	112	973	1443	1230	1601	1308	185	10	1332	2883
6 Mos.	9509	3864	42394	1904	5729	5886	38858	281	852	4629	9045	7678	11111	6287	1097	151	6552	155886
Minnesota.....	June 528	174	3117	163	211	376	2202	10	26	206	541	550	505	668	130	5	630	10202
6 Mos.	3016	1183	1864	1033	1380	2390	12862	103	203	1430	3788	3436	3751	3745	941	42	2654	55334
Mississippi.....	June 176	51	1045	31	100	69	737	3	12	39	166	131	182	130	18	2	184	3076
6 Mos.	921	324	5580	200	430	417	2416	33	80	275	1028	749	1019	727	194	17	1064	17244
Missouri.....	June 1280	641	9486	334	714	1133	7108	31	63	491	1414	1386	1651	1595	184	35	1301	28747
6 Mos.	3172	1537	23096	796	1585	3005	17219	100	223	1281	3639	3500	4363	3843	854	83	3262	71368
Montana.....	June 108	47	475	32	69	127	470	3	11	49	133	77	104	132	21	1	105	1964
6 Mos.	504	252	2434	202	310	523	2291	29	47	290	688	434	573	723	151	10	539	10090
Nebraska.....	June 205	93	1379	89	205	205	1163	5	14	113	219	207	240	273	43	.....	313	4649
6 Mos.	1054	584	7094	395	472	1044	3672	35	82	644	1367	1279	1517	1340	313	14	1160	24346
Nevada.....	June 16	43	170	16	33	51	158	5	5	21	45	38	79	53	12	1	56	802
6 Mos.	127	213	1104	94	188	2046	24	62	129	253	295	467	353	91	14	575	5315	
New Hampshire.....	June 119	38	827	29	107	133	567	3	2	43	86	102	151	210	50	4	347	2818
6 Mos.	472	230	3536	154	436	608	2626	15	47	282	451	463	609	1007	272	15	1403	12987
New Jersey.....	June 1118	626	6145	538	795	805	4777	39	118	389	1079	1108	1556	1626	223	12	1717	22854
6 Mos.	5725	3162	3048	3899	4726	25741	338	673	2292	7086	7887	9086	1487	101	1	9198	123150	
New Mexico.....	June 68	47	544	30	72	80	458	6	6	54	93	122	108	163	25	.....	128	2002
6 Mos.	435	291	3242	170	311	269	33	64	301	648	626	725	853	335	9	816	11916	
New York.....	June 3077	1545	15200	1106	2399	2162	11873	106	218	1181	3524	3187	3685	3933	676	145	4120	88117
6 Mos.	14059	9844	73003	6493	10081	12867	652	1442	6551	18421	18923	18888	2034	3863	1421	31	21164	297238
North Carolina.....	June 462	130	2244	109	269	241	2457	7	15	154	415	455	523	489	79	4	536	5869
6 Mos.	2660	912	13086	740	1423	1706	1432	54	125	911	2431	2853	3293	2425	521	31	3135	50758
North Dakota.....	June 71	24	484	34	55	90	341	1	6	56	85	85	75	111	22	2	32	1574
6 Mos.	406	163	2578	203	246	476	2128	13	28	312	570	466	419	556	8	6	265	8989
Ohio.....	June 2035	559	9833	464	1573	1332	8116	48	88	951	1869	1561	2364	1931	306	32	1393	34455
6																		



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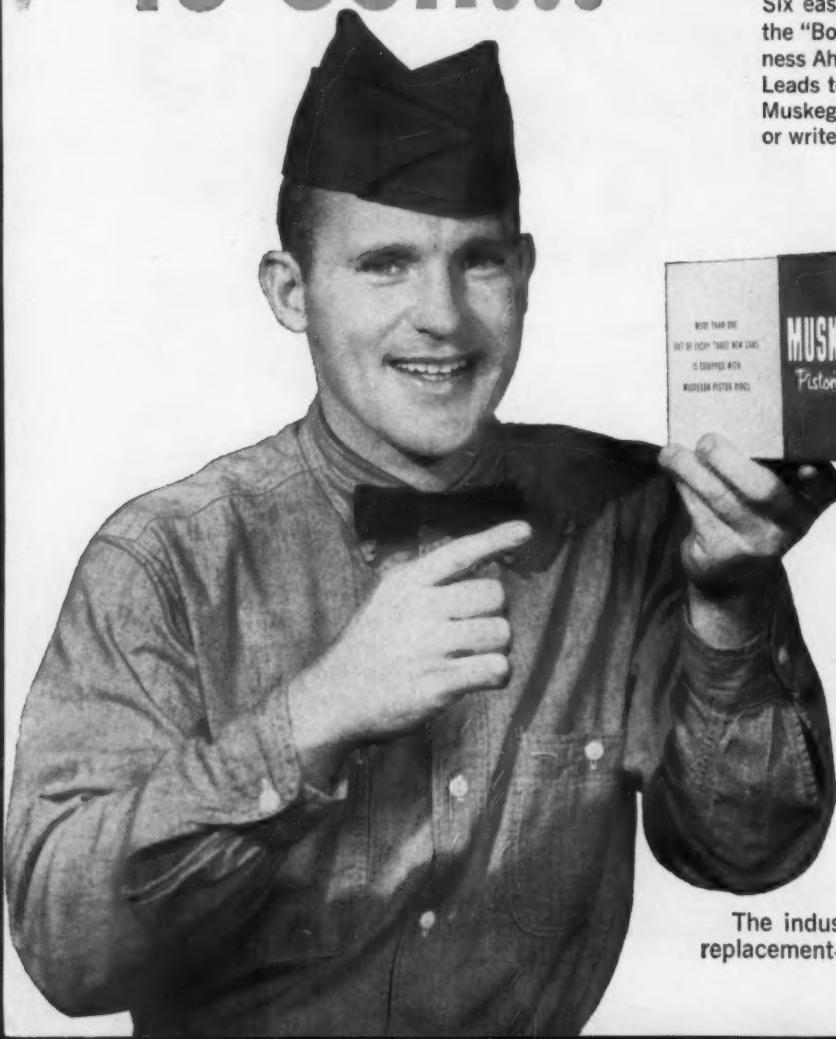
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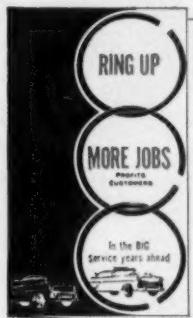


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# 1961 Tune Up—Alignment Specifications

MAKE AND MODEL	No. of cylinders Bore and (In.)	Maximum Brake H.P. Spark Plug Make and Size (mm.)	ENGINE	TUNE-UP DATA								FRONT END ALIGNMENT			
				VALVES				IGNITION				Steering Axis Inclination (Deg.)	Caster (Deg.)	Camber (Deg.)	Toe-in (In.)
				Seat Angle	Clearance Tappet Operating	Inlet (Deg.)	Exhaust (Deg.)	Inlet (In.)	Exhaust (In.)	Breaker Point Gap (In.)	Cam Angle (Deg.)				
<b>AMERICAN MOTORS CORP.</b>															
Rambler . . . . . American (Deluxe & Super)	6-3½x4½	90	CA-14	45	.018C	.018C	.020	30	.035	3B	8	0 to 1P	1N to 1½P	1 to ½	
. . . . . American (Custom)	6-3½x4½	125	CA-14	45	.012H	.016H	.018	32	.035	0B	8	0 to 1P	1N to 1½P	1 to ½	
. . . . . Classic	6-3½x4½	127	CA-14	45	.012H	.016H	.018	32	.035	0B	8	0 to 1P	1N to 1½P	1 to ½	
. . . . . Ambassador	6-3½x3½	200	CA-14	30	.012H	.014H	.017	30	.035	TC	8	0 to 1P	1N to 1½P	1 to ½	
. . . . . Ambassador	6-4½x4	250	CA-14	30	Hyd	.017	.017	30	.035	TC	8	0 to 1P	1N to 1½P	1 to ½	
<b>CHECKER MOTORS CORP.</b>															
Checker . . . . . Superba, Marathon	6-3½x4½	80	Ch-14	30	.014H	.014H	.020	30	.029	4B	7	2P	1P to 1½P	1 to ½	
. . . . . Superba, Marathon (Engine Option)	6-3½x4½	122	Ch-14	30	.017H	.023H	.020	30	.033	3½B	7	2P	1P to 1½P	1 to ½	
<b>CHRYSLER CORP.</b>															
Chrysler . . . . . Newport	5-4½x3½	265	AL-14	45	45	Hyd	Hyd	.017	.035	10B	8½	0 to IN	1P to 1½P	1 to ½	
. . . . . Windsor	5-4½x3½	305	AL-14	45	45	Hyd	Hyd	.017	.035	10B	8½	0 to IN	1P to 1½P	1 to ½	
. . . . . New Yorker	5-4½x3½	380	AL-14	45	45	Hyd	Hyd	.017	.035	10B	8½	0 to IN	1P to 1½P	1 to ½	
. . . . . 300-G	5-4½x3½	375	AL-14	45	45	Hyd	Hyd	.017	.035	5B	8½	0 to IN	1P to 1½P	1 to ½	
DeSoto . . . . . Polara	5-4½x3½	265	AL-14	45	45	Hyd	Hyd	.017	.035	10B	8½	0 to IN	1P to 1½P	1 to ½	
Dodge . . . . . Polara	5-4½x3½	265	AL-14	45	45	Hyd	Hyd	.017	.035	10B	8½	0 to IN	1P to 1½P	1 to ½	
Dodge Dart . . . . . Polara (Engine Option)	5-3½x3½	325	AL-14	45	45	Hyd	Hyd	.010H	.020	43	2½B	0 to IN	1P to 1½P	1 to ½	
Seneca, Pioneer, Phoenix . . . . . Seneca, Pioneer, Phoenix	5-3½x3½	145	AL-14	45	45	Hyd	Hyd	.018H	.020	43	2½B	0 to IN	1P to 1½P	1 to ½	
Seneca, Pioneer, Phoenix (Engine Option)	5-3½x3½	230	AL-14	45	45	Hyd	Hyd	.017	.035	5B	8½	0 to IN	1P to 1½P	1 to ½	
Seneca, Pioneer, Phoenix (Engine Option)	5-4½x3½	305	AL-14	45	45	Hyd	Hyd	.017	.035	10B	8½	0 to IN	1P to 1½P	1 to ½	
Seneca, Pioneer, Phoenix (Engine Option)	5-4½x3½	325	AL-14	45	45	Hyd	Hyd	.017	.035	7½B	8½	0 to IN	1P to 1½P	1 to ½	
Seneca, Pioneer, Phoenix (Engine Option)	5-4½x3½	350	AL-14	45	45	Hyd	Hyd	.017	.035	7½B	8½	0 to IN	1P to 1½P	1 to ½	
Dodge Lancer . . . . . 170, 770 (Engine Option)	6-3½x4½	101	AL-14	46	46	.010H	.020H	.020	.035	43	2½B	0 to IN	1P to 1½P	1 to ½	
Imperial . . . . . Custom, Crown, Le Baron	6-3½x4½	145	AL-14	46	46	.010H	.020H	.020	.035	43	2½B	0 to IN	1P to 1½P	1 to ½	
Plymouth . . . . . Savoy, Belvedere, Fury	6-3½x4½	145	AL-14	46	46	.010H	.020H	.020	.035	43	2½B	0 to IN	1P to 1½P	1 to ½	
. . . . . Savoy, Belvedere, Fury	6-3½x4½	230	AL-14	45	45	.010H	.018H	.017	.035	5B	8½	0 to IN	1P to 1½P	1 to ½	
. . . . . Savoy, Belvedere, Fury (Engine Option)	6-4½x3½	305	AL-14	45	45	Hyd	Hyd	.017	.035	10B	8½	0 to IN	1P to 1½P	1 to ½	
. . . . . Savoy, Belvedere, Fury (Engine Option)	6-4½x3½	325	AL-14	45	45	Hyd	Hyd	.017	.035	7½B	8½	0 to IN	1P to 1½P	1 to ½	
. . . . . Savoy, Belvedere, Fury (Engine Option)	6-4½x3½	350	AL-14	45	45	Hyd	Hyd	.017	.035	7½B	8½	0 to IN	1P to 1½P	1 to ½	
Valiant . . . . . V-100, V-200 (Engine Option)	6-3½x3½	101	AL-14	46	46	.010H	.020H	.020	.035	43	2½B	0 to IN	1P to 1½P	1 to ½	
. . . . . V-100, V-200 (Engine Option)	6-3½x3½	145	AL-14	46	46	.010H	.020H	.020	.035	43	2½B	0 to IN	1P to 1½P	1 to ½	
<b>FORD MOTOR CO.</b>															
Comet . . . . . Comet (Engine Option)	6-3½x2½	85	Ch-18	45	45	.018H	.018H	.025	.037	.034	6B	7	1P to 1½P	1P to 1½P	1 to ½
Falcon . . . . . Falcon (Engine Option)	6-3½x2½	101	Ch-18	45	45	.018H	.018H	.025	.037	.034	6B	7	1P to 1½P	1P to 1½P	1 to ½
Ford . . . . . Fairlane, Fairlane 500, Galaxie	6-3½x2½	135	Ch-18	45	45	.018H	.018H	.025	.037	.034	6B	7	1P to 1½P	1P to 1½P	1 to ½
Ford . . . . . Fairlane, Fairlane 500, Galaxie	6-3½x3½	135	Ch-18	45	45	.019H	.019H	.025	.037	.034	4B	8½	1N to 1½P	1P to 1½P	1 to ½
Ford . . . . . Fairlane, Fairlane 500, Galaxie (Engine Option)	8-4½x3½	220	Ch-18	45	45	Hyd	Hyd	.015	.027	.034	3B	8½	1N to 1½P	1P to 1P	1 to ½
Lincoln Continental . . . . . Lincoln Continental (Engine Option)	8-4½x3½	300	Ch-18	45	45	Hyd	Hyd	.015	.027	.034	3B	8½	1N to 1½P	1P to 1P	1 to ½
Mercury . . . . . Meteor 600, 800	6-3½x3½	135	2Ch-18	45	45	.019H	.019H	.025	.037	.034	4B	8½	1N to 1½P	1P to 1P	1 to ½
. . . . . Meteor 600, 800; Monterey	6-3½x3½	175	2Ch-18	45	45	.018H	.018H	.015	.027	.034	3B	8½	1N to 1½P	1P to 1P	1 to ½
. . . . . Meteor 600, 800; Monterey (Engine Option)	8-4½x3½	220	Ch-18	45	45	Hyd	Hyd	.015	.027	.034	3B	8½	1N to 1½P	1P to 1P	1 to ½
. . . . . Meteor 600, 800; Monterey (Engine Option)	8-4½x3½	300	Ch-18	45	45	Hyd	Hyd	.015	.027	.034	3B	8½	1N to 1½P	1P to 1P	1 to ½
. . . . . Thunderbird	8-4½x3½	300	2Ch-18	45	45	Hyd	Hyd	.015	.027	.034	6B	8½	1N to 1½P	0 to 1P	1 to ½
<b>GENERAL MOTORS CORP.</b>															
Buick . . . . . Special	8-3½x2½	155	AC-14	45	45	Hyd	Hyd	.016	.030	7½B	7½	1N to 1½N	1N to 1½P	1 to ½	
. . . . . La Sabre	8-3½x2½	250	AC-14	45	45	Hyd	Hyd	.016	.030	12B	9½	0 to 1½N	0 to 1½P	1 to ½	
. . . . . Invicta, Electra, Electra 225	8-4½x3½	325	AC-14	45	45	Hyd	Hyd	.016	.030	12B	9½	0 to 1½N	0 to 1½P	1 to ½	
Cadillac . . . . . 60, 82, 63, 75	8-4½x3½	325	AC-14	44	44	Hyd	Hyd	.016	.030	5B	6	1N to 1½N	1P to 1½P	1 to ½	
Chevrolet . . . . . Biscayne, Bel Air, Impala	6-3½x3½	135	AC-14	31	46	Hyd	Hyd	.019	.032	.036	5B	7½	1N to 1½P	0 to 1P	1 to ½
Biscayne, Biscayne Fleetmaster, Bel Air, Impala	6-3½x3½	135	AC-14	31	46	.009H	.019H	.019	.032	.036	5B	7½	1N to 1½P	0 to 1P	1 to ½
Biscayne, Biscayne Fleetmaster, Bel Air, Impala (Engine Option)	8-3½x2½	170	AC-14	46	46	Hyd	Hyd	.019	.030	.036	6B	7½	1N to 1½P	0 to 1P	1 to ½
Biscayne, Biscayne Fleetmaster, Bel Air, Impala (Engine Option)	8-4½x3½	250	AC-14	46	46	Hyd	Hyd	.019	.030	.036	7B	7½	1N to 1½P	0 to 1P	1 to ½
Biscayne, Biscayne Fleetmaster, Bel Air, Impala (Engine Option)	8-4½x3½	325	AC-14	45	45	Hyd	Hyd	.016	.030	.036	7B	7	3P to 3½P	0 to 1P	1 to ½
Corvair . . . . . Super 98, 96	6-3½x2½	360	AC-14	46	46	.008H	.018H	.019	.036	12B	7½	1N to 1½N	1P to 1½P	1 to ½	
. . . . . 88	6-3½x2½	80	AC-14	45	45	Hyd	Hyd	.016	.033	.036	7B	7	3P to 3½P	0 to 1P	1 to ½
Oldsmobile . . . . . F-85	8-3½x2½	155	AC-14	45	45	Hyd	Hyd	.016	.040	.036	4B	4	1½P to 2½P	1N to 1½N	0 to ½
. . . . . 88	8-3½x2½	230	AC-14	46	46	Hyd	Hyd	.016	.030	.036	5B	10	0 to 1N	1N to 1½N	0 to ½
Pontiac . . . . . Catalina, Ventura, Star Chief	8-4½x3½	215	AC-14	30	45	Hyd	Hyd	.016	.036	.036	6B	4½	1N to 2N	1N to 3½P	0 to ½
Bonneville . . . . . Bonneville	8-4½x3½	235	AC-14	30	45	Hyd	Hyd	.016	.036	.036	6B	4½	1N to 2N	1N to 3½P	0 to ½
Tempest . . . . . Tempest	8-4½x3½	110	AC-14	30	45	Hyd	Hyd	.016	.036	.036	6B	4½	1N to 2N	1N to 3½P	0 to ½
. . . . . (Engine Option)	8-3½x2½	155	AC-14	46	46	Hyd	Hyd	.016	.032	.036	5B	4½	1N to 2N	1N to 3½P	0 to ½
<b>STUDEBAKER-PACKARD CORP.</b>															
Lark . . . . . Lark	6-3x4	112	Ch-14	45	45	.024H	.024H	.020	.039	.036	2B	6	1N to 1P	0 to 1P	1 to ½
. . . . . Lark	8-3½x3½	180	Ch-14	45	45	.024H	.024H	.016	.036	.036	4B	6	1N to 1P	0 to 1P	1 to ½
. . . . . Lark Cruiser (Engine Option)	8-3½x3½	200	Ch-14	45	45	.024H	.024H	.016	.036	.036	4B	6	1N to 1P	0 to 1P	1 to ½
. . . . . Hawk	8-3½x3½	210	Ch-14	45	45	.024H	.024H	.016	.036	.036	4B	6	1N to 2½N	0 to 1P	1 to ½

#### ABBREVIATIONS

—Left side only; right side, 0 to 1½P.  
—Left side only; right side, ½P to ¾N.  
AC—A.C. Spark Plug Div.

AL—Autolite.

B—Before top center.

C—Cold.

C-A—Champion or Autolite.

C-B—Champion.

H—Hot.

Hyd—Hydraulic valve lifters.

N—Negative.

P—Positive.

TC—Top center.

## Chilton Manuals . . . . . Continued from page 111

thirty seconds at a time since it is very hard on the clutch.

### Fourth Test

Raise the rear wheels off the ground, put the car in gear and run the engine, now analyze all noises to see if they actually come from the rear axle. On this test it is very easy to come up with a loose universal joint or universal joint noises. However, generally, uni-

versal joint noise can be pinpointed by the sense of hearing.

## TROUBLES AND THEIR CAUSES

### Hum While Pulling

#### Caused By

Defective or improperly adjusted wheel, pinion, or differential side bearings.

Incorrect tooth contact between ring gear and pinion.

### Hum While Coasting

#### Caused By

Generally caused by worn or defective rear axle bearings.

May also be caused by incorrect gear mesh.

### Thumping Noise

#### Caused By

Chipped gear teeth, chipped bearing races or collars, or a piece of metal imbedded in the gears.

### Excessive Backlash

#### Caused By

This may or may not be due to the rear axle. There are many causes of excessive backlash, such as a loose clutch disc, excessive play in the transmission, loose universal joints or flanges, engine missing on one or more cylinders so that it runs erratically, loose wheel hubs. The rear axle causes of more excessive backlash are loose wheel hubs, too much play in the differential gears, incorrect tooth mesh, worn gears or defective bearings.

If a car has excessive backlash, but the rear axle runs quietly under all conditions, it is advisable to first take all the backlash out of the drive line, transmission, and tune the engine before disturbing the rear axle.

Excessive backlash found in wheel hubs should be corrected immediately since it will destroy the hub, the axle or both.

### Noise on Turns

Noise on turns only, is generally caused by chipped or broken differential spider gears or axle side gears. However, this noise may be caused by a loose wheel hub on the wheel on the outside of the turn. If the car makes noise at both right and left turns, then it is probably the differential spider or axle side gears.

## Radiator Servicing Profits Now Greater Than Ever!

### INLAND 1-Piece Radiator Shop



### 3 ESSENTIAL UNITS COMBINED INTO 1

Inland's newest unit makes radiator servicing more profitable than ever. Reduces your initial cost by combining the Flo-Test Machine, Hot Cleaning Vat and Test & Repair Bench into one complete radiator department. Enables you to do the entire Testing, Cleaning and Repairing job. Compact. Saves steps.

**LESS SPACE REQUIRED!** Complete unit is only 11' 7" long, 3' 6" wide.

**LARGE CAPACITY!** Handles all car, and many truck and tractor radiators.

**VAT FEATURES!** Solution agitator speeds radiator cleaning. Automatic Timer turns heat OFF at closing time, turns it ON at any pre-determined hour so solution is hot when you arrive for

work. Even turns it off-on week ends. **OPERATING COST IS LESS!** A full time operator is not needed. One of your present employees, in only a part of his time, will produce good additional profits with no increase in overhead.

**WE TRAIN YOUR OPERATOR!** Our free factory school quickly makes your man a professional radiator repairman.

**BIG PROFITS SERVICING RADIATORS!** Users report: "\$900 first 30 days!" (Ills.) "\$4,500 in 6 months!" (Pa.) "\$18,000 first 9 months!" (Cal.) The market is growing. Many radiators need cleaning. The hourly return is high. Inland's national advertising helps you.

### WRITE FOR NEW 32 PG. BOOK

Shows equipment, prices, training course, Pays-For-Itself purchase plan and experiences of other operators.

### INLAND MFG. CO.

1108 Jackson Street

Dept. MA9, Omaha 2, Nebr.

World's Largest Manufacturer of Radiator Servicing Equipment

INLAND MFG. CO., Dept. MA-8, 1108 Jackson St., Omaha 2, Nebr.  
Please send free 32-pg. book describing new 1-Piece Radiator Shop, training school, prices, etc.

FIRM \_\_\_\_\_

(PLEASE PRINT)

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ ZONE \_\_\_\_\_ STATE \_\_\_\_\_

BY \_\_\_\_\_ TITLE \_\_\_\_\_

If dealer, make of car sold \_\_\_\_\_

Are you now operating a radiator Dept.?  Yes  No

### Mechanics Training

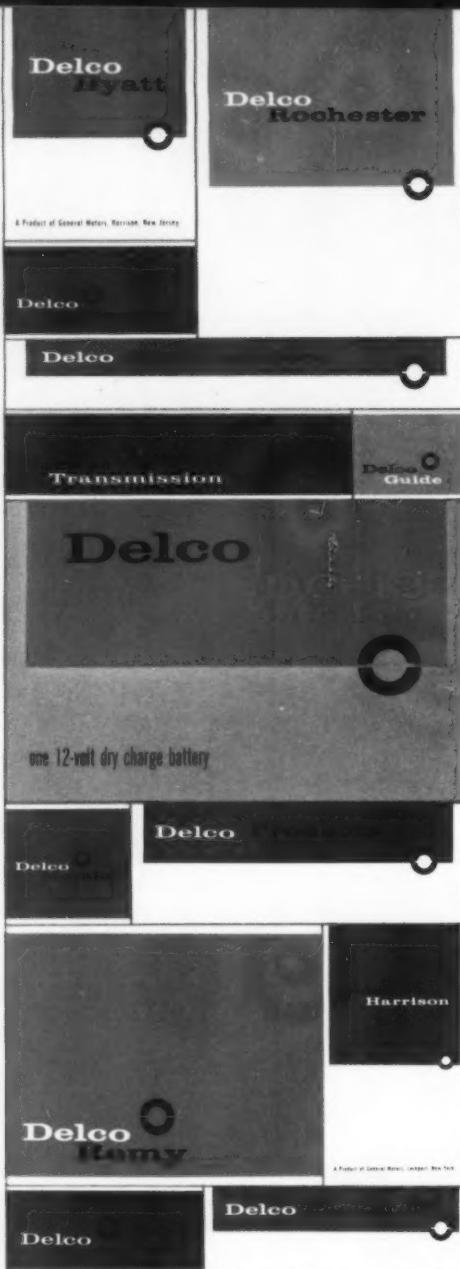
### Course . . . .

Page 69

**GENERAL  
MOTORS  
ANNOUNCES**



**United   
Delco**



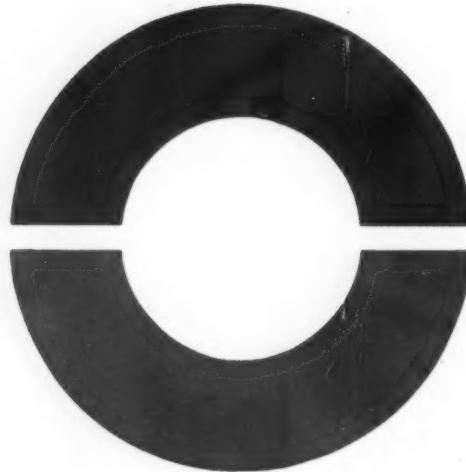
NOW THERE IS

# ONE NEW NAME ONE NEW SYMBOL ONE EASY WAY

TO ORDER, STOCK AND SELL  
AUTOMOTIVE PARTS

## simply say Delco

Simply say Delco . . . and you've said it all! A new name for well-known automotive replacement parts manufactured by many General Motors Divisions . . . a new look for the Divisions themselves . . . a new identification—"United Delco," for United Motors Service, the organization which distributes the parts . . . and a new symbol—the Circle of Precision, to replace the familiar U-M-S oval. They all mean Delco, and Delco means more efficient, more convenient, more profitable business for you! ■ This new look extends all down the line, including the packaging . . . brilliant and color-keyed to simplify your displays, sales, inventory and supply. Everything in the new program takes full advantage of the famous Delco name . . . a name that consumers know and trust, and associate with quality and dependable service. ■ All you do is simply say Delco to your United Delco Supplier, and you have a complete line of consumer-accepted parts for tune-up and light repair. Then watch the money roll in!



**Delco-Remy** / electrical system parts

**Delco Batteries**

**Delco Rochester** / carburetors, repair kits and chemicals

**Delco Packard** / wire and cable

**Delco Products** / shock absorbers

**Delco Harrison** / thermostats

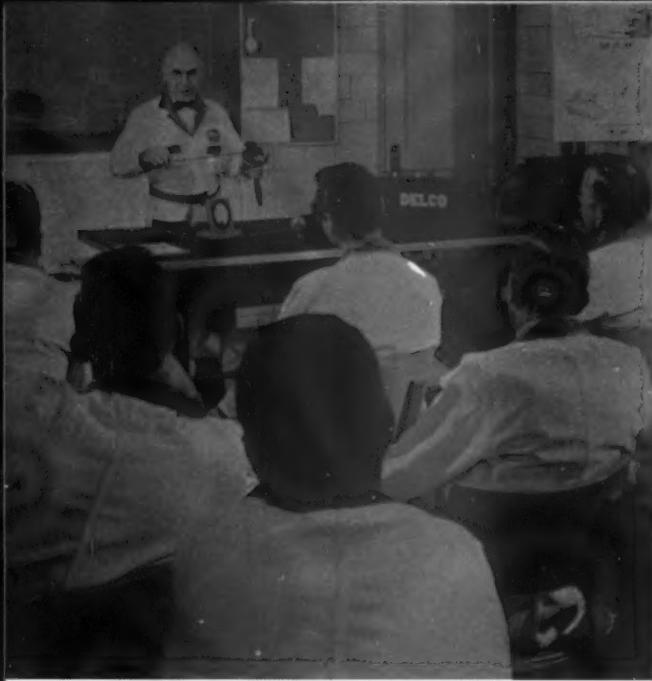
**Delco Hyatt** / bearings

**Delco New Departure** / bearings

**Delco Guide** / automotive lamps and lamp parts

**Delco Moraine** / brake fluid and brake parts

**Delco Appliance** / windshield wiper systems, heater, defroster and accessory motors



**FREE SERVICE TRAINING . . .** thirty schools, part of the GM Training Center Program, across the country for you and your employees to receive practical, scientific schooling in automotive maintenance and repair. These schools feature modern classrooms and equipment, small class enrollment with individual attention, free tuition and training materials. Courses cover: Tune-up • Light mechanical repair • Delco-Remy Electrical Equipment • Delco Rochester Carburetors • Hydra-Matic transmissions. Ask your United Delco wholesaler.



**UP-TO-THE-MINUTE SERVICE INFORMATION . . .** complete, handy, easy to read and understand. You find the right part quickly for all fast-moving Delco lines. One application catalog covers 10 different Delco lines; the Delco TBA Service Manual provides complete service information for tune-up and light repair on all popular cars. Other manuals are available for more detailed service problems. Manuals are automatically up-dated with latest factory information. This Delco service saves you time, speeds customer service, stops costly *comeback* complaints.



**FAMOUS LINES . . .** made even more famous by association with Delco. A recent survey of car owners revealed overwhelming consumer acceptance of the Delco name. With no prompting, 73% of car owners said Delco is the top name in automotive parts. Delco was first in batteries with 87%, first in shock absorbers with 67%, first in starting and ignition parts with 76%, first in brake parts, carburetors, cable, thermostats, always among the top five in almost any part you can name. It's easy to see the selling power of a complete Delco parts line.



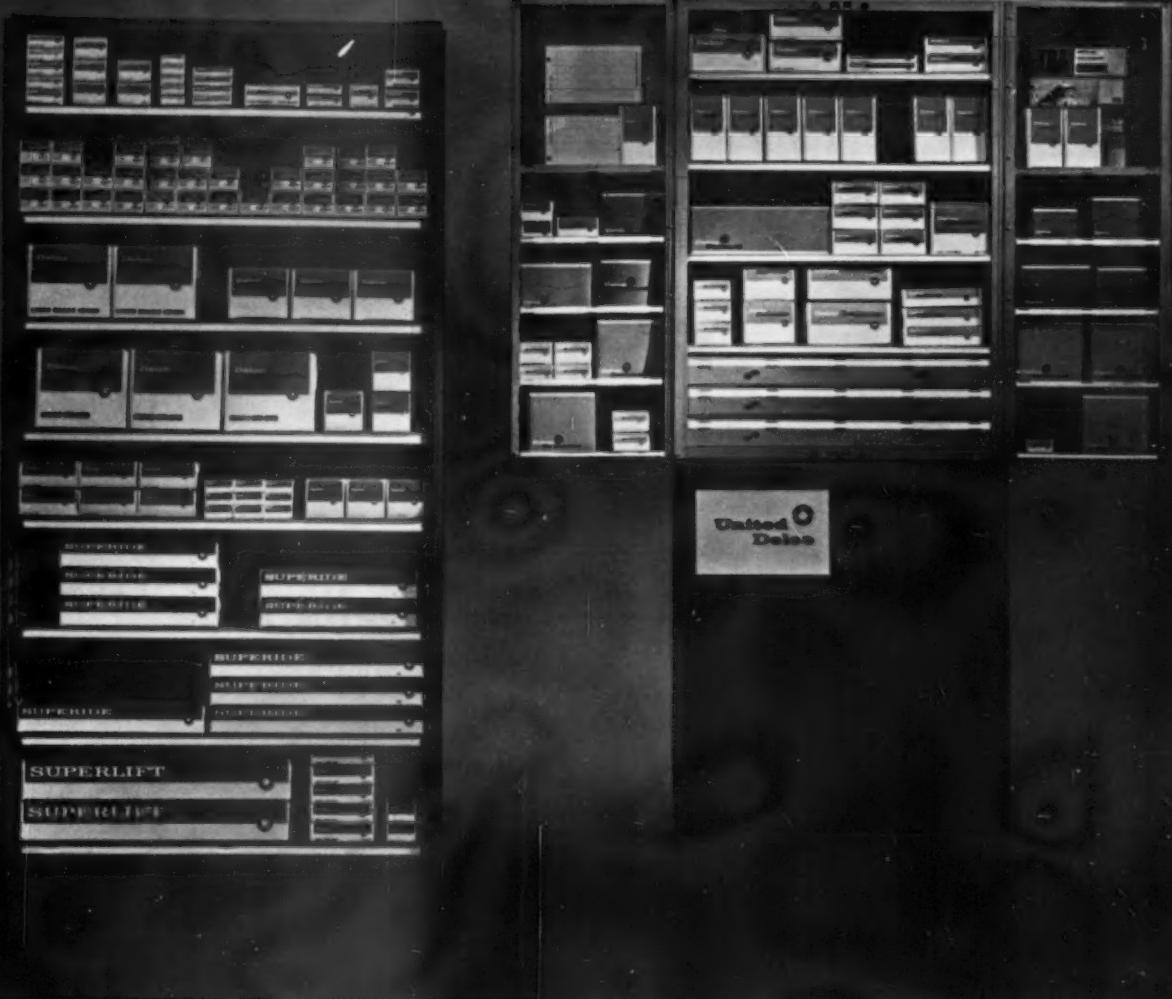
**EFFECTIVE ADVERTISING SUPPORT . . .** you get excellent advertising support from every major advertising medium when you carry the Delco lines! Network TV and radio, consumer magazines, colorful outdoor boards . . . all pound home the Delco quality theme to car owners in your area. Sales aids, point-of-sale material, special service tools, local advertising to support sales at the peak of your selling season . . . all help to show and demonstrate to drivers that you're local *Headquarters* for skilled, efficient tune-up and safety service!



CAR DEALERS, SERVICE STATIONS, GARAGES . . .  
EVERYBODY BENEFITS THROUGH

**United Delco**

If your business is automotive service, if you operate a dealership, a service station, a garage, then Delco's for you! For wherever there's a demand for quality parts and skilled service, Delco fills the demand—to full measure! That's why consumers favor the place that sells Delco . . . they believe in the name and the product that accompanies it. ■ Why don't you profit from consumer acceptance by joining the national network of Delco Dealers? Your United Delco wholesaler representative can show you how. Then watch business grow, bolstered by a continuing program of seasonal promotions that Delco sends your way.



CASH IN ON TUNE-UP, LIGHT REPAIR AND  
SAFETY SERVICE WITH UNITED DELCO'S

## "Pattern for Profits"

Since modern drivers demand safety and performance in their cars and are willing to pay for both, United Delco provides you with a sensible, scientific way to get your hands on those extra dollars.

How? Simply say Delco. Get Delco's Tune-up Center and Light Repair Center. In combination, they form an efficient, well-balanced service operation that will attract more customers for everything you sell. Start profiting now. Get the whole story from your United Delco wholesaler.

**TUNE-UP CENTER** . . . the right inventory of fast-moving Delco ignition and carburetor parts, correctly balanced for turnover. Four cabinets available, tailored to your requirements and priced from about \$90 to \$600, including cabinet and parts inventory.

**LIGHT REPAIR CENTER** . . . durable, compact. Features brake parts and fluid, shocks, bearings, stats—all Delco! Three assortments, from about \$210 to \$610, including cabinet and parts.



**ANNOUNCING DELCO BATTERY'S  
'61 MAJOR PROMOTION . . .**

## **12 FREE TRUCKS FOR**



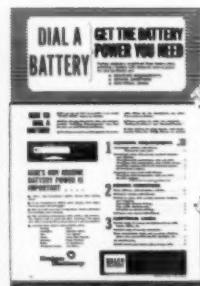
Here it is! The Delco Battery "Pocket of Profits" promotion . . . 12 free trucks and other prizes . . . ladies' diamond rings, stereo and hi-fi sets, color TV, sterling silver flatware, Frigidaire automatic washers and dryers, movie cameras, electric shavers . . . all to show how easy and profitable it is to sell Delco batteries!

### **NOW—CHECK A BATTERY IN 5 SECONDS!**

With the Delco-tronic Checker you can check battery voltage output while you check water and oil . . . in seconds! Spot bad batteries . . . sell new ones! It's a durable, lightweight, fully transistorized precision instrument, available at a special low price during the Promotion. Ask your United Delco wholesaler salesmen to demonstrate it . . . and you're eligible for the contest prizes!

### **EVERYBODY WINS!**

Yours free! Brand-new "DIAL-A-BATTERY," a mechanical display that shows customer which Delco he needs, plus WINDOW BANNER advertising 5-second battery check. Both yours when you mail entry blank.





*Six New Chevy Trucks . . .  $\frac{3}{4}$ -ton Fleetside pickups . . . all grand prizes during the "Pocket of Profits" promotion! Six battery dealers will win them—why not you? Each truck is equipped for complete road service with such features as: 4-speed transmission, 3,000-lb. rear springs, heater, directional signals, service lights, 4-ton wrecker with sling and other accessories. A profit-making addition for any service station, car dealership or garage.*

## DELCO BATTERY DEALERS!

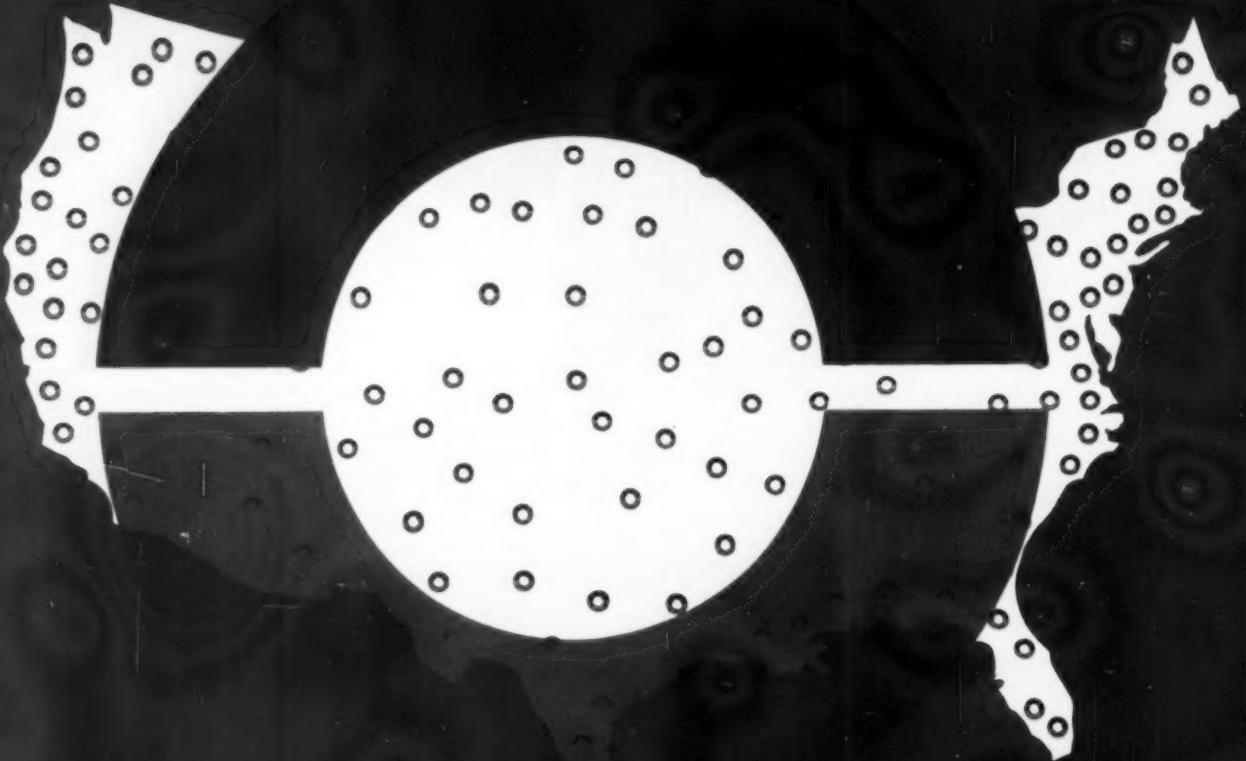
**HOW TO ENTER THE  
"POCKET OF PROFITS"  
CONTEST**

(see official entry blank  
for complete rules)

1. Ask your United Delco wholesaler salesman for a demonstration of the 5-second Battery Checker.
2. Think of a name for the checker which you believe most aptly describes its convenience and business-building possibilities.
3. Write the name on the official, pre-addressed, postpaid entry blank and mail.

*Six New Corvair Trucks . . . popular Rampside pickups . . . they're all second prizes! With their curb side loading ramp, these trucks are just the ticket for easy-on, easy-off delivery. Six battery dealers will win them . . . all custom-equipped with 6-ply white wall tires, direct air heater, 2-speed wipers and windshield washers, wheel covers and two-tone paint.*

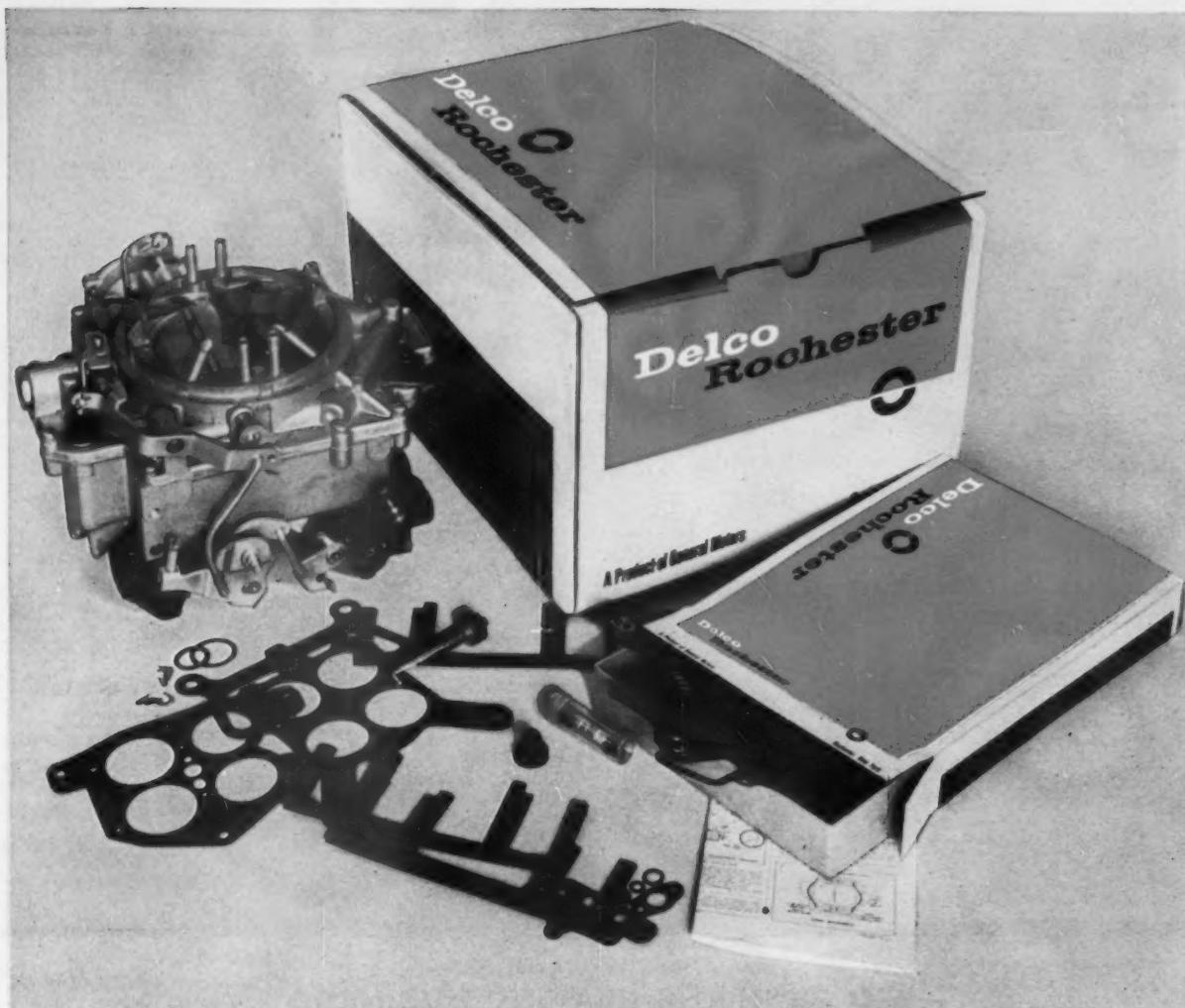




**ALL AROUND THE COUNTRY, YOU RECEIVE FASTER,  
MORE CONVENIENT, MORE PROFITABLE SERVICE WHEN YOU**

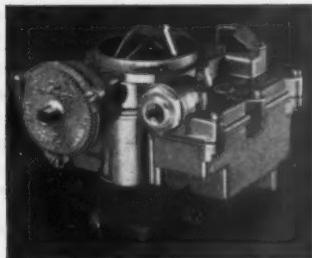
Wherever you are, you find that United Delco is nearby, ready to serve you in a hundred different ways. The organization is many things: convenient zone offices, well-stocked warehouses, service training centers, wholesale outlets . . . all strategically located across the country; and it is people . . . field men, service instructors, wholesaler personnel and many others, all with one goal—better automotive service. If increased profits and better service are the words you live by . . . why not join the most progressive parts distribution team in the country? It's as easy as calling your United Delco supplier.

UNITED MOTORS SERVICE, Division of General Motors



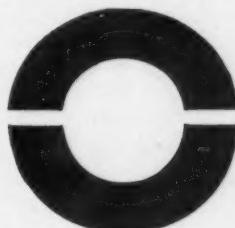
**TO OFFER A PEAK PERFORMANCE CARBURETOR TUNE-UP OR REPLACEMENT**

## **simply say Delco**



You can make customers' carburetors work like new with a Delco-Rochester Carburetor OK Kit. The Kits contain the necessary parts for fast, profitable carburetor tune-ups. Parts . . . gaskets, needle and seat, pump plunger . . . are conveniently packed in a handy tray. Your customers will see the satisfying results on the gas gauge and on the highway. ■ If, however, a carburetor needs replacing, simply say Delco. The Delco-Rochester replacement carburetor matches our original equipment carburetor for reliability because *both* come off the same assembly line. All Delco-Rochester carburetors incorporate the latest engineering improvements to deliver peak performance, improved economy and rugged reliability. The complete line of **Delco-Rochester** carburetor service and replacement parts is distributed nationally through **United Delco**.

ROCHESTER PRODUCTS, Division of General Motors





TO BE IN THE BEARING BUSINESS

## simply say **Delco**

Delco New Departure and Delco Hyatt make it easy and profitable for you to be the wheel bearing expert in your neighborhood. Here's all you do! Remind customers that for safe driving, front wheel bearings should be serviced every 10,000 miles; keep an assortment of Delco New Departure Ball Bearings and Delco Hyatt Tapered Roller Bearings on hand so you will have the bearings you need for replacements on any car . . . millions of cars are factory-equipped with them. ■ No special equipment or training is required for bearing installation. And this is a good time to inspect and sell new grease seals, brake parts, wheel alignment and balancing, shocks, suspension parts and tires. ■ Your United Delco supplier has Delco New Departure and Delco Hyatt wheel bearing assortments that provide bearings for all popular requirements with a minimum initial stock investment. . . . Call your United Delco supplier today. Simply say Delco for **Delco New Departure** and **Delco Hyatt Bearings**, distributed nationally through **United Delco**.

UNITED MOTORS SERVICE, Division of General Motors



## You Tell Me Your Views . . . Continued from page 128

ago, cars were required to pass an inspection every 6 months, by city operated stations. Worked fine till the public found out you could leave a \$5.00 bill on the seat and pass no matter what. Back in the 30's a five looked pretty good—now it would take a \$20.00. I think the answer is to have state owned stations who do no repairing and will not accept bribes. An ideal station would be one run by the state which would be impartial. That way there would be no hard feelings when you turned a customer down and the customer could have the work performed where they wanted to. It would create a lot of jobs and increase mechanic labor, because they could check linings and mufflers, etc.

Another thing that gripes me about the Texas law is there is not enough state inspectors checking the stations. I live in a small town where there are four inspection stations and it galls me for me to turn down an inspection for an infraction and they will go down the street and get a sticker and never be corrected—and come back and tell you so. It makes it pretty rough on a man trying to do the right thing.

I have been service manager in a dealership for ten years and average about 1000 inspections a year. I have heard all the pros and cons, all the excuses, all the bribes and hard feelings and, believe me, it all goes back to the "nut" behind the wheel.

Another Texan

### Meanwhile Back In W.Va.

Dear Editor:

I have just finished reading your account of Motor Vehicle Inspections in the various States.

We were a Vehicle Inspection station from 1955 until February of 1961 for the State of West Virginia. Believe me, never again—never, never again.

One of the reasons the Automotive Industry is so big, so great, so prosperous, so competitive, is because of lack of government interference. Not because we need government inspection of vehicles.

We lose another little bit of our freedom with vehicle inspections.

They do not make cars more safe. They do not bring the garages more business. They do not make more money. They only take away the garage or repair shop right to free enterprise and the motorist is saddled with more car expense and bother.

This story is so big it would take many pages, but we wish you'd look into this side of the car inspection story. If allowed to continue, the car business will be reduced to the status of the airplane people who cannot make a move without signing a paper and going through all kinds of red tape. Car ownership will be restricted to the well-off job holder.

Man from Martinsburg

### Bay State Beef

Dear Editor:

I enjoyed your article immensely, my only criticism being, you did not write or say enough.

We in this State also have compulsory auto inspection, in April, and October of each year, as you know perhaps, we also have compulsory auto insurance.

Regarding your article I agree with every statement you have made, but will go further. The majority of automobile owners in every State are fair minded, obeying the laws of the State, which is for the protection, and safety of all, who also are careful drivers.

There is, however, a certain segment who are always of the opinion that any law must be obeyed by the other person, not by themselves.

There has been a Safety Inspection Law in force in Massachusetts for many years, after these bi-annual checks. There is always a certain number of vehicles being driven with stickers that should not even be registered.

This condition is due to some dishonest inspectors, or adjusters, as we call them, at scattered inspection stations.

Before starting my own shop I was an adjuster at the shop where I worked, handling on an average of 800 stickers per month for the inspection period. Perhaps I was somewhat strict in the interpreta-



Saves  
Time  
and the  
Finish

The New Herbrand No. 865 Windshield Wiper Arm Puller removes the entire arm assembly quickly—easily, without the slightest damage to either the arm or the car finish.

MECHANIC'S  
NET  
**\$1.89**

Now — no screwdrivers or makeshift tools to slip or gouge! The No. 865 tool slips easily between the wiper arm and output shaft. A gentle tap with the sliding hammer releases the wiper arm, saving you time and preventing damage. The sliding hammer is permanently attached to the tool, eliminating any possibility of loss.

The Herbrand No. 865 Windshield Wiper Arm Puller is made of specially selected steels, heat treated, with a bright finish. Ask your jobber.

# Herbrand Tools

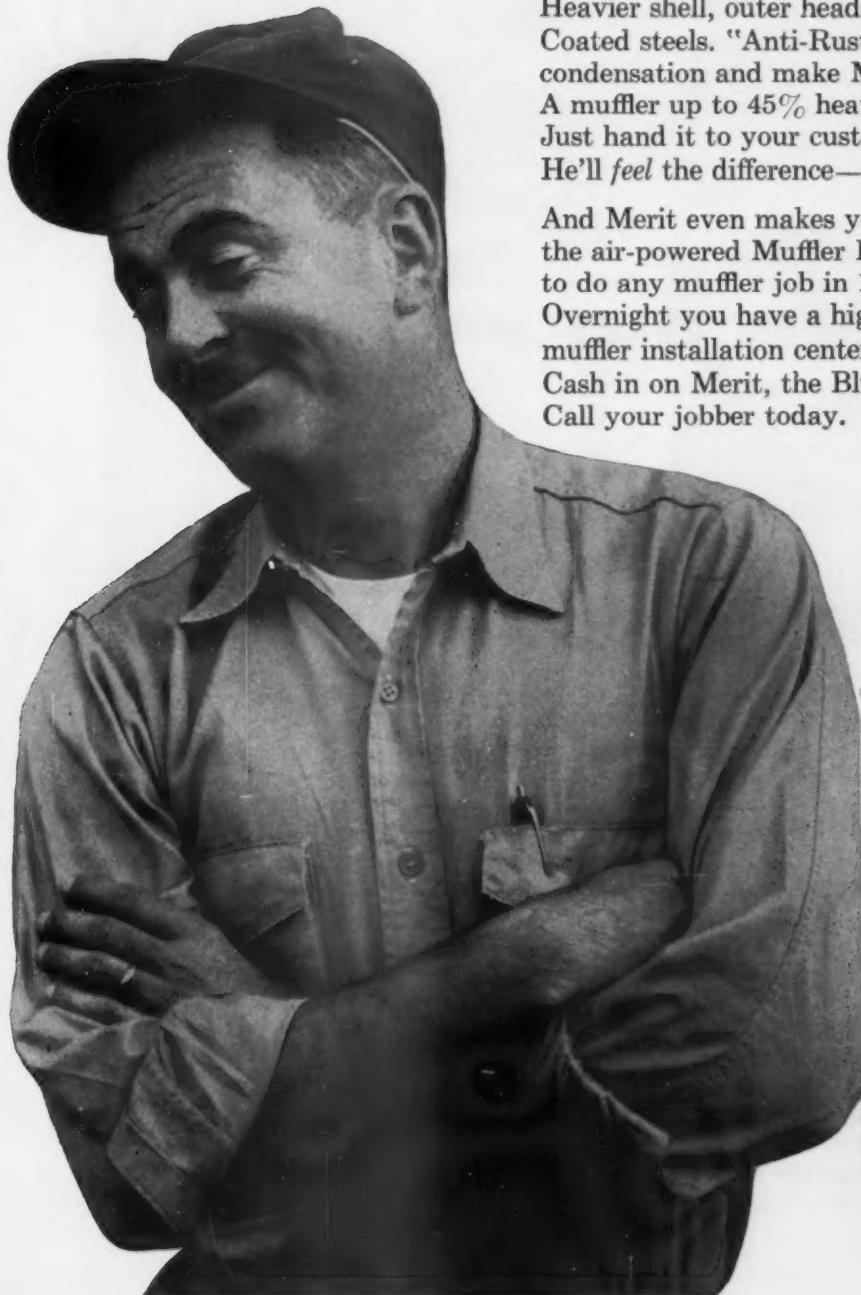
HERBRAND DIVISION • THE BINGHAM-HERBRAND CORPORATION  
FREMONT, OHIO



# Selling mufflers is easy-



# if you're selling MERIT



And it's easy to see why.

Heavier shell, outer heads and inner parts.

Coated steels. "Anti-Rust" internal design—to cut condensation and make Merit last longer.

A muffler up to 45% heavier.

Just hand it to your customer.

He'll *feel* the difference—and buy!

And Merit even makes your *work* easier—the air-powered Muffler Kutter enables you to do any muffler job in 15 minutes.

Overnight you have a high-speed muffler installation center!

Cash in on Merit, the Blue Chip line.

Call your jobber today.

## MERIT

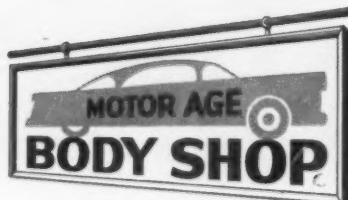
MUFFLERS AND PIPES

Dept. 18-J, 619 Smith St., Toledo 1, Ohio



A well kept shop and tow trucks are a part of this operator's advertising plans.

## Don't FARM OUT your profits



*Having the right equipment in your shop will build traffic and increase profits*

THE addition of a frame rack and front end wheel alignment equipment has added considerable profit and traffic to Rothermel's Auto Body Shop, Reading, Pa.

"Not only do motorists have greater confidence in a shop that can offer a complete service under one roof," says shop owner, Norman J. Rothermel, "but it also means additional profits. Any work that is "farmed out" because the equipment is not available in the shop to handle it also means "farmed out" profits. In these times, when you have to estimate close and make the most of the labor that is working in a shop, it is very important that equipment to handle every type of serv-

ice is available at all times in the shop."

Up to recent months, Rothermel had been farming out his frame and front end wheel alignment work. This was time consuming, delayed jobs and meant working on a smaller profit margin.

"Even more important was the lack of control that we had over this type of work," explains Rothermel. "If the frame wasn't lined up exactly as it should be, our sheet metal men ran into trouble, and this meant additional time and labor to iron out the wrinkles. If the motorist was not pleased, he returned to our shop and then we had a "buck passing spree" in trying to determine who was at



Rothermel explains to a customer why he can expect expert work on his particular job because of this frame rack.



Norman Rothermel gives an "on-the-job" explanation of a wheel alignment to a shop customer.



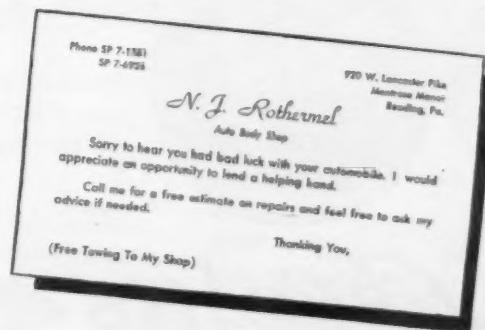
The owner of the shop prepares a job estimate for and with a potential customer.

fault—our body men or the shop who handled our alignment work. In either case, lack of control over frame alignment limited our efforts to do this type of work. It was a source of periodic dissatisfaction and also cut into our profit margin on jobs that required this service, so we added this new equipment."

Since this equipment has been added, Rothermel's Auto Body has enjoyed increased work volume and greater satisfaction from its customers. Motorists also have greater confidence in a shop that does everything under one roof. They know that there can be no "buck passing" and can expect service after

*Continued on page 172*

One of the "sympathy cards" that tells a customer that this operator is aware of his problem and is ready and willing to serve him.



## Crusade For Salesmen . . . . Continued from page 79

Selling them is another problem and it's entirely up to you.

An oil change can provide you with an excellent opportunity to spot some possibilities and do some plus selling. When the car is on the lift you get a look at tires and wheel alignment, shocks, mufflers, tail-pipes, springs, and evidence of leaks in the transmission—to name a few. When you raise the hood you have a shot at the fan belt and battery,

among other things. So, no matter what your customer drives in to buy, you have a built-in chance to send him out with more than he came for.

All the salesmen in the world don't wear the striped necktie and the grey flannel suit and carry an attache case. A tremendous number of them show up for work every day wearing overalls or a uniform and

Continued on page 161

## You Tell Me . . . .

Continued from page 153

tion of the rules on determining whether a vehicle needed some, or certain repairs to meet the requirements of the law.

Over a period of time I made many reports of certain motor vehicles that were refused stickers by me unless certain necessary repairs were made, that were driven with stickers secured elsewhere. Reports were ignored.

I simply want to emphasize the need for better and more stringent "Inspections" of these so-called "Safety Inspection Stations" that are not abiding by and to the law in that they are issuing stickers at a price to cars that are unsafe to drive.

My contention always has been that, this State particularly, has been too lax in not spot-checking cars on the road to determine where unsafe cars secured their stickers and weeding out these dishonest inspectors.

Forty-nine automobiles may be perfectly safe to drive. Of what use is the effort of those forty-nine owners in keeping their cars safe when the fiftieth owner is driving a vehicle that is unsafe.

That fiftieth car can involve any one of the other forty-nine cars, perhaps two or three of them, in an accident that could cause death.

There is little more to say, except, if possible write more items on the same subject, but stressing the fact that, regardless of condition of any motor vehicle, it is always dangerous if the NUT behind the steering wheel is loose.

Man from Massachusetts

## Service Managers' Notebook . . . .

Continued from page 120

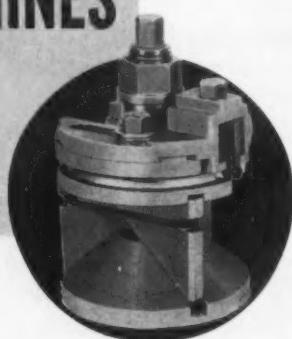
battery post. After assembly of clamp to the post, apply a light film of oil or grease to protect the releasing tangs from corrosion.

CAUTION: Do not hammer or otherwise drive terminal onto post. The post contacting surface of the clamp should not be filed or reamed as it could damage the built-in spring.



## RIDGE REAMERS

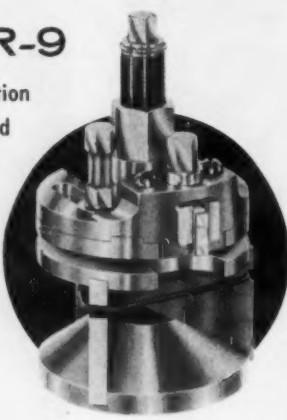
BEST  
FOR  
ALL  
TYPES  
OF  
ENGINES



*The SR-9 gets all the ridge in one setting.*

### Model SR-9

Lisle's finest lathe-action Ridge Reamer designed for angle-block and short stroke as well as conventional engines. Handles cylinders from 3" to 5".



### Model SR-16

The famous "Sweet 16" Scraper-type ridge reamer. Engineered to work perfectly in all types of engines. Same big range — 3" to 5".

The tungsten-carbide cutters used in both the SR-9 and SR-16 will stay sharp indefinitely.

**ASK YOUR JOBBER**

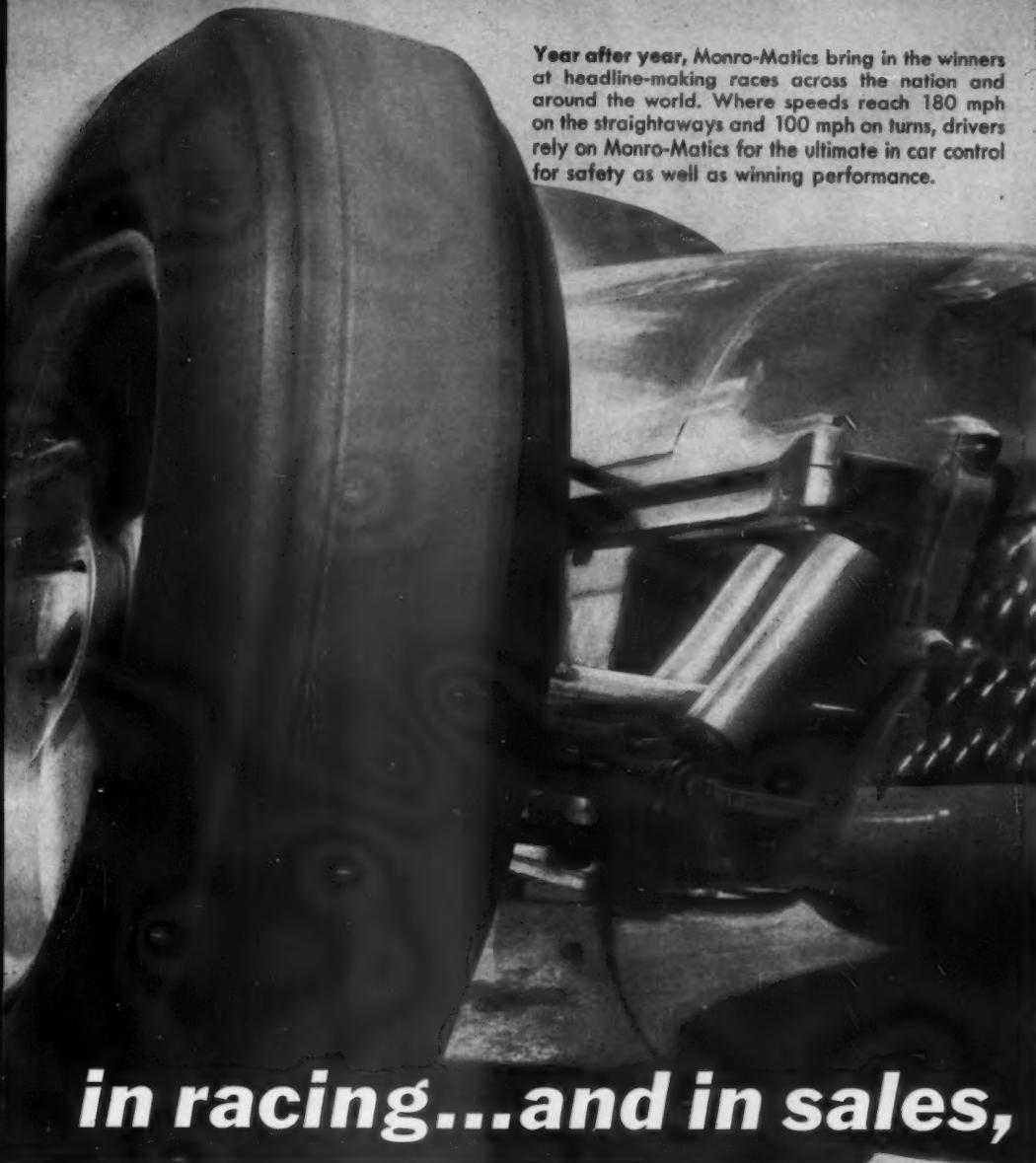
**Lisle**

AUTOMOTIVE TOOLS  
JEEPERS CREEPERS

BRAKE PARTS  
CABLES

AIRCRAFT & AUTOMOTIVE  
ORIGINAL EQUIPMENT

LISLE CORPORATION • TOOL DIVISION • CLARINDA, IOWA



**Year after year, Monro-Matics bring in the winners at headline-making races across the nation and around the world. Where speeds reach 180 mph on the straightaways and 100 mph on turns, drivers rely on Monro-Matics for the ultimate in car control for safety as well as winning performance.**



**AT INDIANAPOLIS** A. J. Foyt took top honors in the classic Indianapolis "500" with an average of 139.131 mph, riding on Monro-Matics.



**AT MILWAUKEE** Rodger Ward set 101 new track records in the big-car "100" with Monroe Super Load-Leveler stabilizing units on all four wheels.



**AT DAYTONA BEACH** Marvin Panch led the field in the Daytona "500" for late-model stock cars in his Monro-Matic equipped Pontiac, averaging 149.601 mph.



**AT CHARLOTTE, N.C.** In the World "600" stock car race, David Pearson rode to victory on Monro-Matics with an average of 111.633 mph.

***in racing...and in sales,***

## **MONROE SHOCK ABSORBERS SCORE GRAND SLAM**

No other brand of shock absorbers has ever created the enormous demand that continues to build for Monro-Matics®. As motorists become more aware of the importance of shocks to driving safety, the preference for Monro-Matics grows month by month.

Helping to spur this demand is one of the most ambitious, hardest-hitting advertising campaigns in the automotive service industry. Month-after-month ads in LIFE, LOOK, POST, HOLIDAY; POPULAR MECHANICS, POPULAR SCIENCE, MECHANIX ILLUSTRATED; FIELD & STREAM, OUTDOOR LIFE, SPORTS ILLUSTRATED and SPORTS AFIELD. An all-out radio campaign, spearheaded by BILL STERN, on more than 350 stations of the Mutual network. A landslide of promotional aids for dealers.

The fast-moving Monroe line is like money in the bank. Your Monroe jobber can help you start the profits rolling in today. Call him now!

Dealers report that the Monroe Barrel Demonstrator is boosting Monro-Matic shock absorber and Monroe Super Load-Leveler® stabilizing unit sales by as much as 400%.



### **MONROE AUTO EQUIPMENT CO. MONROE, MICHIGAN**

World's largest maker of ride control products, including SUPER LOAD-LEVELER® stabilizing units • In Canada, MONROE-ACME, Ltd., Toronto. In Mexico, MEX-PAR, Box 28154, Mexico City.

**MONRO-MATIC®**  
SHOCK ABSORBERS



## Grease the Ways to Profits . . . . .

Continued from page 88

Transmission  
Drive Axle  
Steering Gear  
Power Steering System  
Brakes, Service and Parking  
Wheel Bearings  
Clutch and Clutch Linkage  
Generator or Alternator  
Distributor  
Manifold Heat Control Valve  
Carburetor Throttle Linkage

### Doors, Hood, Trunk Latches and Hinges

These lubrication services, offered in conjunction with service for customer safety, comfort and economy, will mean lots of extra business and profit for you.

Periodic car-on-the-lift service can help your customers get longer and more comfortable service life from their cars. Careful lubri-

tion and inspection will help eliminate friction and wear in such parts as steering and front end pivot points. It will also help eliminate hard riding, vibration and noise by uncovering potential trouble spots and curing them before parts fail or a bad accident results.

### Faster Service

Oil changes can be done faster and cleaner on the lift—and at the same time you are lubricating or safety-inspecting a car. Many people are confused as to how often to change oil. Yet there is one safe, simple rule to follow, set up by the petroleum industry's experts after long and careful study of modern driving conditions and engine needs. Here it is:

**Change oil every 30 days in Winter  
every 60 days in Summer**

This rule is based on the following facts: (1) Most cars today are used in start-stop, short-run driving—engines do not warm up properly and therefore accumulate heavy sludge unless oil is changed frequently; (2) The condition is prevalent the year round, but can be worse in Winter because of colder temperatures; (3) How a car is used, not car mileage alone, is the principal factor controlling oil-change intervals.

Get cars on the lift every 1000 miles for a grease job, for a safety inspection, for an oil change, either alone or in combination—as the National Lubricating Grease Institute's new symbol so graphically suggests. You'll not only do your customer a good turn, but you'll also get more of the profitable lubrication and oil-change business, as well as many extra opportunities for repair and replacement parts business.

**JUST OUT!**

**NEW**  
**ARMSTRONG**  
**CATALOG**

*Quality Tools for Industry*

New ARMSTRONG General Catalog #700, showing the complete ARMSTRONG Line, has been released. This catalog lists approximately 330 tools that have not been included in previous ARMSTRONG Catalogs.

Additions have been made in the following categories:

- Tool Holders
- Set-Up-and-Hold-Down Tools
- Tool Bits
- Wrenches
- Ratchet Wrenches and Sockets
- Miscellaneous Hand Tools
- Pipe Tools

Get your free ARMSTRONG Catalog No. 700 showing these important additions, as well as the thousands of other tools included in the ARMSTRONG Line. The catalog is a necessity for anyone who uses or buys hand tools or shop tools. Write direct, or phone your local ARMSTRONG Distributor (who has a supply of new catalogs on hand). If you do not know which distributor in your area carries the ARMSTRONG Line, we will be glad to supply this information upon request.

**ARMSTRONG BROS. TOOL CO.** 5266 W. ARMSTRONG AVE.  
CHICAGO 46, ILLINOIS

**Give Your Business  
A Lift—  
appears on  
page 89  
of this issue  
of  
Motor Age**

## Don't Mix Wheel Bearing Greases . . .

*Continued from page 63*

generated by brake shoes and working surfaces of the brake drum. Because of this condition a soap material must be used that can withstand heat without loosening the oil that it retains. For many years the best grease for wheel bearings were formulated with a soda soap base because of its relatively high melting point. A soda soap base gives this type of grease a ropey or fibre appearance. Many users consider this ropey appearance necessary to a wheel bearing lubricant, whereas it has no effect on its ability to lubricate.

Since the adoption of the 14" wheels and most recently the 13" wheel, bearings and their lubricants are now closer to the hot brake surfaces than ever before. This means that the bearings today must operate at higher speeds and heat and the soda base greases are limited in their ability to withstand these higher temperatures; further soda base greases will rapidly deteriorate in the presence of water. Surface water thrown up from rain or snow covered roads around the wheel hub area—a problem accentuated with smaller wheels and lower hubs.

Here is what happens when you mix these greases. Lithium base grease is an excellent wheel bearing lubricant, provided it is not mixed with a soda base grease. Chemically the two greases are not compatible. If mixed in the wheel hub or on the bearings themselves an oily runoff will usually occur in a few hundred miles affecting both brake and bearing life.

### How to pack wheel bearings:

Since you don't know what type grease is in a bearing always remove the bearings and remove all traces of whatever greases are in there. Wash old grease from bearings and hub. Use air to dry bearings but avoid spinning them on their inner race—repack bearings with a light film of grease and install new dust seals. Never reuse a grease seal as it is impossible for an old one to do a good job.

## Crusade For Salesmen . . . *Continued from page 158*

carrying a lunch pail. This doesn't mean that they are any less salesmen. It simply means that they have a lot of other things to do besides selling. It means that they are ready and willing to provide some extra services that an ordinary salesman can't or won't do.

A service station salesman has to be patient and diplomatic, because a great many of his customers (particularly women) have to be educated while they are being sold.

They have to be shown that they are not stupid—just a little forgetful.

A good reputation is important to a service station operator, and in the eyes of most customers the salesman IS the station. So, the impression that he makes has to be a good one. The Boy Scout Law doesn't begin to describe what a lot of customers expect of a service sta-

*Continued on page 178*

## Something's missing from this picture . . . but not this picture

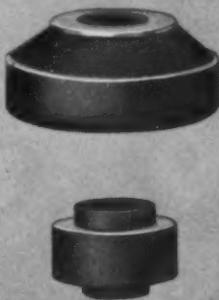


Photo shows the old way of buying motor mounts—without the fittings.



Photo shows the new way of buying motor mounts with all the fittings for time saving installations.

### NEW! improved plan combines **MOTOR MOUNTS** with Assembly Kits

Next time you buy motor mounts—play it cool.

Buy the matching Assembly Kits. Doan now offers all the necessary fittings—bolts, nuts, washers, everything to install motor mounts. Don't buy one without the other. The cost is small compared to the savings in time.



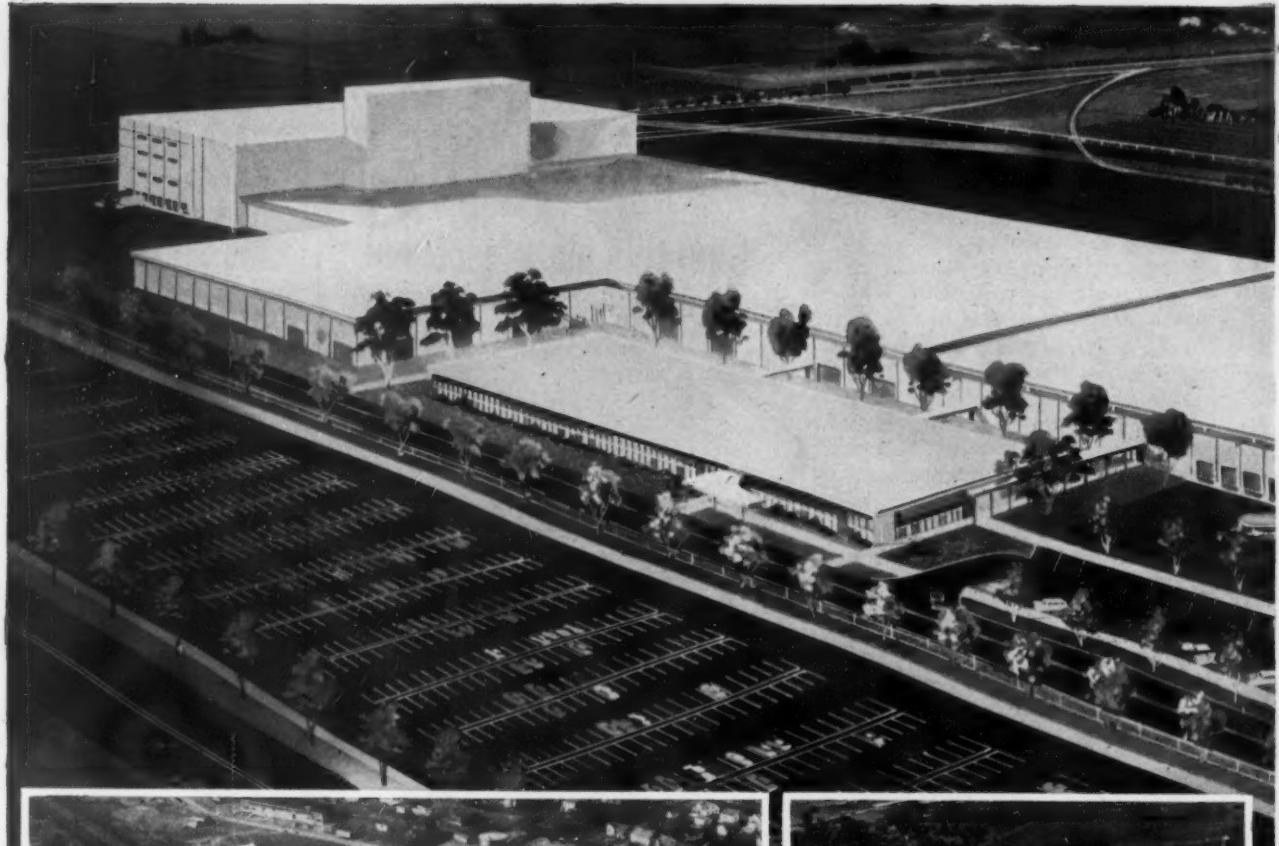
### **DOAN MANUFACTURING**

*A DIVISION OF ANCHOR INDUSTRIES, INC.*

1725 LONDON ROAD — CLEVELAND 12, OHIO

# ARMSTRO

**"California,**



West Haven, Conn.



Des Moines, Iowa



Natchez, Miss.

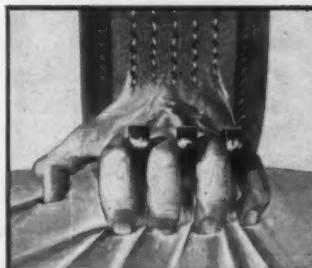
# NG TIRES

## here we come!"



California, here we come!...with a \$25,000,000 plant in Hanford, California that will add tremendous capacity to Armstrong tire production...that will enable Armstrong to meet the constantly growing demand for tires with patented Safety-Disc grip! This plant is proof, in concrete and steel, that there's a big future for you in the tire business with Armstrong, the company that makes a profit promise to its dealers and lives up to it!

**GET THE FACTS  
AND GROW WITH  
ARMSTRONG**



**...the Tires  
with the  
patented  
"pay-off"  
features!**

THE ARMSTRONG RUBBER COMPANY, HOME OFFICE, WEST HAVEN, CONNECTICUT

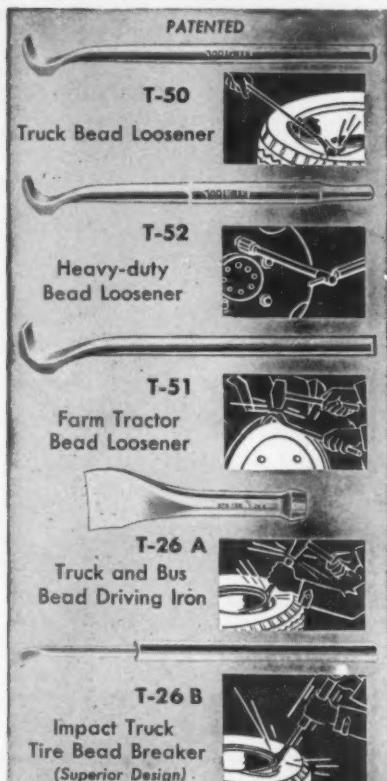
MOTOR AGE • September 1961

# Change Truck Tires *EASIER* with

JOB-DESIGNED  
**KEN-TOOL**

## QUALITY BEAD LOOSENERS

Free frozen beads quickly with exclusive Ken-Tool Bead Looseners. They provide greater leverage . . . loosen the most stubborn truck tire beads quickly, easily.



SEE YOUR JOBBER on the complete line of Job-Designed Ken-Tools. Forged by the largest exclusive manufacturer of top-quality Tire-changing Tools and Equipment. THE KEN-TOOL MFG. CO., AKRON 5, OHIO.

JOB-DESIGNED  
**KEN-TOOLS**  
TIRE CHANGING  
TOOLS KNOWN AND USED  
AROUND THE WORLD

## Analyzing Hole In One . . . Continued from page 65

to reach the piston and cylinder walls. This grit will break down the oil film between the two surfaces. Failure of the piston and cylinder walls will result shortly.

Dirt and grit also enters the engine and reaches the pistons by way of the engine lubricating oil. Infrequent oil changes, lack of adequate service to crankcase breather caps (replacement is cheaper than trying to clean em), neglect of oil filter change periods all contribute to piston and cylinder wall wear.

### Carelessness

Carelessness in working around the cylinder head and removing spark plugs without first cleaning the plug area with compressed air, contributes to the entrance of foreign matter into the combustion chamber. A good example of piston damage by this condition is shown in one of our illustrations in this article. A spark plug terminal nut dropped into the combustion chamber and wasn't discovered by the mechanic. The resulting damage is very evident by the condition of the piston in the illustration. Whenever a piston is found with top damage like that shown, it would pay you to examine every piston in the engine for similar damage. In fact, you should blow out the intake manifold and check the head or cylinder ports because foreign matter will travel from bank to bank, from cylinder to cylinder.

### Detonation

During normal combustion a flame originates at the spark plug and spreads outward until all the mixture is burned. It is not an explosion but rather a progressive burning in which the flame front advances at a speed of about 50 miles per hour. Detonation takes place when the advancing flame front compresses the remaining unburnt mixture ahead of it and raises its temperature by compression and radiation to the point where the entire unburned mixture will ignite spontaneously in a true explosion. When this happens it generates a pressure wave which travels at enormous velocity. It is the impingement of the pressure wave on the cylinder wall which

causes the "pinging" sound so characteristic of detonation.

In an automobile this noise is objectionable in itself, but because it is so noticeable, detonation is seldom allowed to continue to the point where damage will occur. On the other hand, in a heavy duty engine the general noise level may be so high, or the position of the engine with respect to the operator such that detonation can occur without being audible, thus it would be allowed to continue and cause severe damage.

### Effects Of Detonation

Detonation is harmful because of the severe impact loads it imposes on the engine and because it causes a considerable increase in the heat flow to the engine, sometimes enough to actually melt the piston. This results from the scouring action of the pressure wave on the boundary layer of stagnant gases adhering to the surface of the piston, cylinder walls and combustion chamber. The overheating then leads to pre-ignition where the fuel charge is ignited before the spark occurs by some object heated to incandescence in the combustion chamber. Pre-ignition, in turn, imposes even more severe mechanical loads on the engine. Thus detonation, if prolonged, sets up a chain reaction, the ultimate result of which is destruction of the piston and engine parts.

When primary detonation damage is indicated concentrate investigation on the following:

1. Fuel grade used vs. octane requirements
2. Basic ignition timing settings
3. Automatic spark advance
4. Leaking intake manifold (too lean a mixture)
5. Cross firing spark plugs
6. Operating engine under full throttle low rpm (lugging)
7. Pre-ignition may result from too much carbon, grinding valve edges too thin or sharp, or from a spark plug of the wrong heat range

A careful examination of the condition of the piston will help reduce the destructive effects of Dirt, Detonation and Pre-ignition damage.

# IF THEY'RE NOT AS GOOD AS NEW...



## THEY'RE NOT FORD AUTHORIZED

The Seal tells you—they're good as new—from the inside out. The Ford Authorized Reconditioners Seal is more than a symbol. It means quality . . . reliability . . . and savings! ■ This seal appears on every Ford Authorized Reconditioned part. It means the unit has been remanufactured to Ford Motor Company's exacting quality standards. Each assembly is warranted by the Authorized Reconditioner against defects in workmanship and materials for 90 days or 4000 miles, honored by Ford dealers across the nation. ■ *Quality control* is the secret. All replacement parts are *new Genuine Ford parts*. And high quality standards add to the reliability of every unit. ■ In this case, however, quality is not expensive. In fact, Ford Authorized remanufactured parts are attractively priced for garages, service stations and fleet operators. ■ Insist on Ford Authorized Reconditioned parts. The seal tells you they're good as new from the inside out.

*See your local Ford Dealer*

FOR THE COMPLETE LINE OF FORD AUTHORIZED RECONDITIONED  
ENGINES • TRANSMISSIONS • SMALL PARTS



**WANT CONTACT SETS THAT MAKE PRECISION TUNE-UPS EASY?**

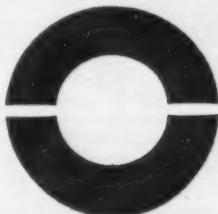
## **simply say Delco**

You save time when you install preassembled Delco Remy contact sets—save even more time on factory-adjusted units. They're available to fit most popular American cars and light trucks. And original-equipment quality gives you maximum protection against "comebacks." ■ Of course, this keeps your customers happy, too. They might never know about our sealed moisture-proof package that keeps contact sets factory-fresh. Or about our special fatigue-resisting spring, high-speed lever



long-wearing points and rubbing block. Most likely, they'll just notice that their cars are performing better than they expected. And you'll get all the credit—which is all right with us. **Delco Remy** automotive parts are distributed nationally through **United Delco**.

DELCO-REMY • Division of General Motors Corporation • Anderson, Indiana



## Winter Merchandising . . . . . Continued from page 87

have started my winterizing campaign earlier and many of these cars stuck on the roads and parking lot wouldn't be here now.

If this scene, Mr. Service Station owner seems all too familiar, then do something now to prevent its recurrence when the first snow appears. Wouldn't it be better, for instance, if motorists started preparing their cars for winter this month instead of at the last minute? It makes good sense to start your winterizing campaign now in Septem-

ber so that your station will not have to make last minute panic sales under hectic winter conditions. You will and should have the chance to be able to offer a complete winterizing package which will insure the motorists a safe and carefree period of winter driving.

In planning your winterizing campaign it is wise to use proven merchandising and promotional campaigns. Automotive equipment and parts manufacturers, for example

are constantly sponsoring sales promotions on their items which stimulate seasonal sales and service. Contact them for some money-making ideas. Incidentally, the July, August and this current issue of MOTOR AGE presents some of the outstanding Merchandising and Promotional Campaigns of manufacturers in the automotive industry. These promotions are designed to sell more in sales and service. Look them over. Then write to the company for additional information and selling material. They will certainly pay off increased profits and business.

### Winterizing Campaign

Your Winterizing Campaign can be waged by using banners and signs offering "specials and package deals." Sell the customer on a complete winterizing servicing package. Distribute flyers and put ads in newspapers to bring in additional new customers. Radio commercials are also ideal in getting the community to know what your station offers and where it is located.

When a customer pulls in for installation of anti-freeze, sell him also on the idea of a cooling system checkup, to insure that his car will be in safe running condition for the winter. Check for leaks around the hose, radiator core, heater pump, petcock, cylinder head gasket and block. Use a pressure tester to uncover these leaks. Check the pressure type radiator cap and be sure the high-temperature thermostat is opening and closing correctly. After checking the radiator hose, double check the hose clamps. Don't forget to check the fan belt for frayed or worn condition. Replace any item that may break down or is deteriorated.

### Promote Sales

So, Mr. Service Station Owner, get moving now on promoting this gold mine of sales and service. You can sell more to a customer when you both have the time to discuss details of your winterizing package. Your last-minute panic shopper will only buy what is desperately needed at the moment. He will not wait around for the additional sales and service that your station offers, especially if its snowing outside and all he is interested in is getting home to his fireside. Sell now, and both your customers and yourself will benefit.



Makers of quality imported cars specify Lucas products as original equipment. To insure customer good will always replace Lucas with Lucas. A Lucas representative will be glad to help you plan a basic inventory.



United States Factory Branches

**LUCAS** ELECTRICAL SERVICES, INC.  
501-509 West 42nd Street, New York 36, N.Y.

LAMPS • DISTRIBUTORS • GENERATORS  
COILS • HORNS • REGULATORS • STARTERS  
WINDSHIELD WIPERS • BATTERIES • GIRLING  
BRAKES AND SHOCK ABSORBERS

Englewood, N.J. • Los Angeles • Chicago • Houston • San Francisco • Jacksonville • Seattle • Boston • Denver • Baltimore

# New Literature . . . . .

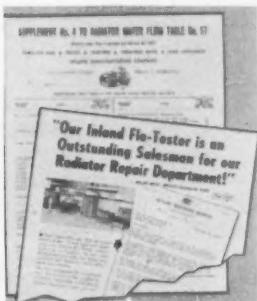
## **Gift Bookard**

*Designed to simplify gift-giving by businessmen*

**Automated Gift Plan, Inc.**: "New Products" are the principal theme in this year's Gift Bookard line. It is designed to simplify Christmas gift-giving for the businessman's customers or employees. The 1961 Gift Bookard line consists of eight different booklets in price ranges from \$7.50 to \$100.00 each. In addition, each booklet features about 25 of American industry's newest and most beautiful gift products. The basic idea, is that the recipient selects any one gift from this assortment and sends an attached card to Automated with his choice. Automated in turn, fulfills the request. Advantages of this plan, is outlined in Automated 12 page 10x14 presentation folder. Write: *Automated Gift Plan, 80 Park Ave., New York 16, N.Y.*

## **Radiator Water-Flow Chart**

*Lists gravity water flow in gallons-per minute of all autos*



**Inland Manufacturing Co.** A new 4-page supplement to company's Radiator Water-Flow Chart is available to radiator repair departments and shops. The chart lists the gravity water flow in gallons-per-minute for 1961 models of all makes of autos, trucks, tractors, industrial units and farm implements. Used with

an Inland Flo-Test machine, the chart enables the operator to determine how much the radiator is plugged, if any, and whether or not a cleaning job is recommended. The Flo-Test Machine is portable and tests radiators on or off the vehicle. Write: *Inland Manufacturing Co., 1108 Jackson St., Omaha 2, Nebr.*

## **Driver Training Booklet**

*Visual aid for driver training in high schools*

**Chrysler Corporation**: A 16-page illustrated booklet, designed as a new visual aid for driver training in high schools throughout the United States, is now being distributed through Chrysler Corporation dealers. It is prepared with the guidance and help of many safety groups and state school heads.

## **PROTECT YOUR CUSTOMERS FROM . . .**

# **CLOG-it is**

**"MILLIONS OF MOTORISTS Stalled"**  
**On streets and highways in 1960!**

One of Nation's leading auto clubs reports 3,200,000 motorists required roadside service — all due to gasoline or carburetor troubles often caused by filter-clogging — CLOG-ITIS.



When CLOG-ITIS strikes, cars stop . . . in city traffic, on expressways, on snowy mountain sides, on desert roads, day or night . . . the one and only protective solution:

## **MILEAGE MINDER**

*with automatic self-cleaning filtration*

*Self-cleaning is but one of many benefits of MILEAGE MINDER. It filters, purifies fuel, minimizes vapor lock, ends stalling and engine dying . . . stops gas waste due to flooding . . . regulates and economizes on gas flow to assure miles and miles of extra travel . . . affords complete protection against warm weather fuel complaints.*

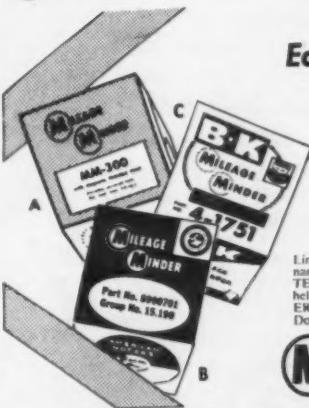
*Filter clogging ranks as today's No. 1 trouble spot on more than 6 million cars produced with in-the-line filters. Many clog within 3,000 miles. In-the-line replacements only duplicate the problem.*

*The one protection — MILEAGE MINDER — with patented, self-cleaning, non-clogging filter.*

## **Yes! A FREE Bonus**

Each **MILEAGE MINDER**

Box top NOW worth **\$1.25**  
as outlined here:



Look for these popular MILEAGE MINDER brands.

A MILEAGE MINDER B AMERICAN MOTORS C B-X SERVICE PRODUCTS, INC.  
all models MILEAGE MINDER MILEAGE MINDER MILEAGE MINDER  
Part No. 6990701 Part No. 4-1750 Part No. 4-1751

Limited time offer Mail us 6 box tops (value \$7.50) and \$5 with dealer's name and address. We send prepaid CARBURATOR NEEDLE VALVE TESTER (advertised mechanics' net price \$12.50). This necessary tool will help you sell more carburetor repair kits, major tune-ups, MILEAGE MINDERS, plugs, etc. . . more dealer profits . . . more salesmen commissions. Don't delay.

## **MILEAGE MINDER**

3380 - 17th Street  
San Francisco 10, Calif.

## **Motor Age's Calendar of Coming Events**

Sept. 13—American Petroleum Institute Div. of Marketing, Lubrication Committee Meeting, Traymore Hotel, Atlantic City, N.J.

Sept. 13-15—National Petroleum Assn. Annual Meeting, Traymore Hotel, Atlantic City, N.J.

Oct. 6-8—IGO of Iowa, 3rd Annual State Convention, Blackhawk Hotel, Davenport, Iowa.

Nov. 8-10—Automotive Parts Re-builders Assn. Convention & Trade Show, Hotel Biltmore, Los Angeles, Calif.

Dec. 7-14—Automotive Electric Assn. 44th Annual Meeting and Manufacturers-Distributors Conference, Edgewater Beach Hotel, Chicago, Ill.

Dec. 9-11—8th Annual Auto Trim Show-Convention, Hotel Ambassador, Los Angeles, Calif.

Feb. 3-7, 1962—National Automobile Dealers' Assn. Convention & Exhibition, Convention Hall, Atlantic City, N.J.

Feb. 28-Mar. 3—International Automotive Service Industries Show, Navy Pier, Chicago, Ill.

Mar. 22-25—Pacific Automotive Show, Memorial Coliseum, Portland, Ore.

Apr. 11-13—Canadian Automotive Service Show, Automotive Building, Canadian National Exhibition grounds, Toronto, Canada.

## **Powerglide Transmission . . . . .**

*Continued from page 62*

gasket. Install a front pump driver tool and remove pump assembly from turbine housing. Loosen low servo adjusting screw and remove pump assembly from turbine housing. Loosen low servo adjusting screw and remove transmission input shaft and clutch assembly from transmission. Back off adjusting screw and remove low servo brake band and strut assembly and remove low servo piston and release spring.

Remove universal joint, install mainshaft removing tool or tap shaft in with a soft hammer. On late models it is necessary to remove the governor first. Remove reverse brake drum. Loosen reverse servo lock nut, back off adjusting screw and remove the band and servo piston. Remove rear pump and gasket.

### **Special Care When Handling "O" Rings**

Never use an old "O" ring. If you do you will be sure to have trouble. Before assembling an "O" ring, parts should be thoroughly cleaned of dirt and chips. All sharp edges and burrs should be removed. Ring should be free of twists. This can be done by placing ring on a clean flat object. When handling the ring during installation, make sure it doesn't get twisted. Place one side of the ring in the groove and then pull the opposite side straight back. Insert a smooth edged flat tool between the "O" ring and leading edge of the groove and run the tool around the groove. Avoid using a twisting motion when assembling the parts. Always lubricate the parts and the "O" ring with automatic transmission fluid.



ST 255

### **safety first with Stant Tester and Lev-R-Vent**

The filler neck of our customer's vehicle is a vital spot. But it's fraught with danger for you and for him. You need to stock and push Stant Lev-R-Vent Safety Caps to prevent scalds. And especially now you need Stant Cooling System and Cap Tester to insure your winterizing against leaks after you install the coolant! Ask your jobber salesman about our special fall promotion on Lev-R-Vent Safety Caps. The bonus caps with the Stant ST-255 Tester make your cost unbelievably low! Get ready now to do complete cooling system servicing.

STANT MANUFACTURING CO., INC.

Connersville, Indiana

Standard of the industry and  
original equipment for a generation



# the new "jiffy applicator"

Motor-Medic is again first in the field to bring you an *easy way to increased profits*. The new Jiffy Applicator makes it easy for you to add Motor-Medic to Transmissions, Differentials, Gear Boxes and Wheel Bearings... Motor-Medic is more than an additive, it is a *must*.

## MOTOR-MEDIC NO. 1

guarantees one of the toughest, most dependable oil films harsh metal-to-metal contact by maintaining constant drain out of bearings, off cylinder walls or other wearing transmission or rear end with Motor-Medic.

ever known. It prevents lubrication — will not surfaces. Quiet that noisy

Available in cans or jars for pouring, or Jiffy Applicator for easy installation.



**FREE Installation Gun  
with each carton of  
24 Jiffy Applicators.**

Motor-Medic is a 100% American Petroleum Product formulated to stabilize and fortify lubricating oil and greases for maximum results under all operating conditions.

Motor-Medic mixes perfectly with oil and grease and gives *added* protection wherever lubrication is needed. Call your Jobber and order a supply today! A *free* installation gun is packed with each case of 24 Jiffy Applicators.

RADIATOR SPECIALTY COMPANY  
CHARLOTTE, NORTH CAROLINA  
RADIATOR SPECIALTY CO. OF CANADA, LTD.  
TORONTO, CANADA



## Don't Farm Out Profits . . . Continued from page 157

the job if it is needed. Because of the availability of this equipment, the shop can guarantee the type of work that it is doing and can provide closer estimates which will, in turn, give the shop its normal profit margin.

"In addition to the actual use of our equipment on jobs for which they are meant," says Rothermel, "we also use it as a selling point in bringing work into our shop. After

working up an estimate for our customers, we take them on a tour of our shop and show them the equipment that we use. This helps to sell them on our ability to do the necessary work quickly and efficiently. As a result, many who have had in mind "shopping around" for better prices decide to leave their work here without going any further. Even if a motorist has obtained a lower price elsewhere, they

decide to pay the difference because they realize they are going to get a more expert job done here."

Because Rothermel places so much emphasis on his shop and equipment in selling his customers on having their work done here, he maintains a strict policy concerning the cleanliness of his shop and its equipment. Every mechanic must keep his working area in as clean a condition as possible and also do the same concerning the equipment and tools he is using. In addition, a porter comes into the shop each week and cleans up the floor area and all equipment and tools.

"Many motorists consider an auto body shop as a dusty and ill-maintained working area," says Rothermel, "and we feel that this has a 'negative effect' on the motorist. However, showing them around a well kept shop with modern equipment changes their opinion of a body shop, and they are more willing to leave their cars to be worked on and also minimizes any disputes about price."

The addition of a wheel alignment rack has had another profitable effect on the activities of this auto body shop. No less than one and as many as five wheel alignment jobs per day have been enjoyed by this shop since this equipment has been added. Here again, this work was previously "farmed out" which meant little or no profit to the shop, and they actually turned this type of work away unless there was additional work that could be done on the car in its own shop.

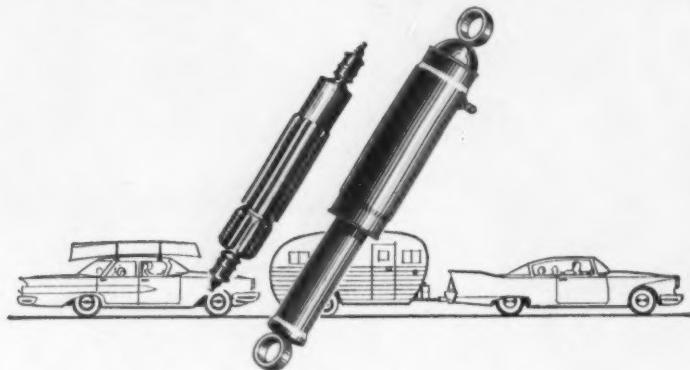
"Our average wheel alignment job now runs around \$10.00 and is an added source of profit to us considering that it takes in the neighborhood of thirty-five minutes to do this service," says Rothermel. "Even more important is the fact that a wheel alignment check usually leads to other front end work, and this can usually mean another \$10.00 to \$25.00—depending upon what is needed. In combination, therefore, we are not only earning a profit on our wheel alignment services, but have an added opportunity to render additional services when they are needed by the car that is having its wheels aligned."

In addition to the shop's regular customers, many highway service  
Continued on page 179

Give customers the best ride for their money with

## GOLDEN GLIDE

Shock-Absorbers • Load-Absorbers



Whether it's Golden Glide Shock Absorbers all around or Golden Glide shocks in front and Load-Absorbers in back, your customers will get a truly *balanced ride*. Golden Glide shocks provide the velvety-smooth ride customers expect from new-car suspensions. Load-Absorbers in place of rear shocks mean the car *always* rides level—loaded heavy or light. For extra-heavy loads—house or boat trailer, etc.—the motorist just adds air pressure to the Load-Absorbers.

Sell this top-performance team for more satisfied customers and more profits. Golden Glide means smooth going—for you and for your customers. Call your jobber today for full details.

### THE GOLDEN GLIDE SHOCK ABSORBER COMPANY

Cleveland 15, Ohio

**GOLDEN GLIDE**  
Shock-Absorbers • Load-Absorbers

## ABC of Shop Safety . . . . . Continued from page 53

**T**RAIN all employees in safety. There is a safe and a dangerous way to handle any work assignment. By stressing the safe way in your job instruction training, your employees learn the right and the safe way to perform the task.

**U**TILIZE all safety information and posters available. One lost time accident will cost far more than all the safety booklets and posters you can buy. Use this material—don't store it until an accident happens.

**V**ISIT other firms. Things may look safe at home, but seeing things in new surroundings may produce a multitude of ideas to improve safety. In your visits don't hesitate to ask questions and to compliment your host on his safety program—he will open up with plenty of ideas.

**W**ELCOME all safety suggestions. We all have ideas that can improve safety. When these suggestions are welcomed by management, we are more inclined to submit more ideas—and from these suggestions will come ways to keep accidents at a low level.

**X**-MARK all accident areas. You will provide a constant

reminder of safety when you use some distinctive mark for places where accidents have happened. An "X" is a simple way to identify accident areas.

**Y**EARN for fewer accidents. Wishing may not make it so, but when you consider the accident cost in terms of dollars, lost time and physical pain it is easy to yearn for fewer accidents. Yearn-

ing will keep you alert for safer work.

**Z**EALOUSLY guard your safety record. Try to extend the accident free time and to reduce the number of lost time accidents. Remember: Safety is everyone's business—everyday.

**Technical Section  
begins on page 59  
of this issue**

## TEN MILLION GENERATORS AGO\*

a new performance test was created

### New Imported Car Registrations\* June

	1961	1960
Volkswagen	16,267	12,007
Renault	4,061	5,377
Triumph	1,188	2,365
English Ford	1,124	2,148
Fiat	1,100	1,811
Metropolitan	1,073	1,783
Mercedes Benz	1,037	1,759
M.G.	1,032	1,365
Austin-Healey	980	1,301
Volvo	985	1,229
All Others	7,225	10,948
Total	36,079	42,101

### Six Months

	1961	1960
Volkswagen	87,904	76,040
Renault	19,860	38,247
Fiat	6,583	15,497
English Ford	5,914	15,132
Mercedes Benz	5,890	12,366
Triumph	5,251	8,956
Volvo	5,075	8,867
Opel	4,913	8,519
Austin-Healey	4,538	7,445
Metropolitan	4,423	7,135
All Others	38,728	88,760
Total	189,077	266,964

\* Data property of R. L. Polk & Co. May not be copied, sold, or reprinted without Polk permission.

For Service Shops and Jobbers, it provides Rebuilt Generators proved fit for road service before they leave the production floor.

How is it possible? We spent years finding the answer. In fact, the first 101 testing methods which we designed and built were unsatisfactory. But the 102nd design succeeded, and Test "102" was born. Since then, advanced electronic instrumentation has refined its accuracy and reliability.

Does it work? We think so because more than 10,000,000 Arrow Generators have passed this "performance test", others have failed and gone back for reprocessing. No Arrow Rebuilt Generator ever leaves the plant until Test "102" has proved it fit for service.

\*That is, ten million ARROW generators ago.



**ARROW ARMATURES COMPANY**

BOSTON 34, MASS. • SPARTANBURG, S.C.

Five "firsts" on the "Fourth"

# Automotive engines do their



**PIKES PEAK STOCK-CAR CLIMB**—Swinging around one of the 152 switchback curves that makes this upward climb one of the world's toughest tests for car and driver, Louis Unser pilots his Champion-sparked Chevrolet to a record-shattering victory in the 1961 Pikes Peak Auto Hill Climb for stock cars. The old stock-car record, set in 1957, was 15:39.2 minutes. Louis Unser shaved off better than half a minute, setting a new mark of 15:06 even!

prove again...

# best with Champion spark plugs!

From the cold, rarefied air of snow-topped Pikes Peak to the sweltering heat of the Daytona Speedway, the Fourth of July was a big day for auto racing—and for Champion! A day that proved again something that has been proved countless times before: No matter what the engine—or how tough the driving conditions—you can always depend on top performance from silvery-plated Champions



**PIKES PEAK CHAMPIONSHIP CLIMB**—In the fastest drive ever made up the mountain, four-time winner Bobby Unser makes it five victories as he becomes the first man ever to drive to the top in under 13 minutes! Smashing the record (13:28.5) he set last year, Unser's Champion-sparked charger whipped up the 12.42-mile course in 12:56.07 minutes! On some of the short straights he hit 120 mph!



**DAYTONA "FIRECRACKER 250"**—In a blistering race (154 mph) on a blistering track (126°), David Pearson slams his Champion-equipped '61 Pontiac into the lead on the all-important last lap to win his second big NASCAR Grand National race of the year. Earlier, Pearson won the Charlotte "World 600" in his Champion-sparked stocker.



**INDIANAPOLIS RACEWAY PARK**—Norm Nelson, 1960 USAC stock-car champion, dominated the day in his Champion-fired '61 Ford: Fastest heat, fastest qualifier, winner of the Trophy Dash and winner of the 100-lap main event.



**TRENTON, N.J.**—Sharing the driving chores with Jim Davies, Bob Marshman, co-choice for 1961 "Rookie of the Year" at Indianapolis, drove the Champion-equipped Konstant Hot Special to victory in the 250-mile USAC race.

These Champion-sparked victories are but part of a long and continually growing list of performance events won by cars using always-dependable Champion spark plugs.

Why is Champion the spark plug that wins most performance events? Simply because performance experts know that—regardless of claims—no one has ever built a spark plug to outperform a Champion in an automotive engine! It's a good reason for always equipping your customers' cars with the performance spark plugs—silvery-plated Champions!



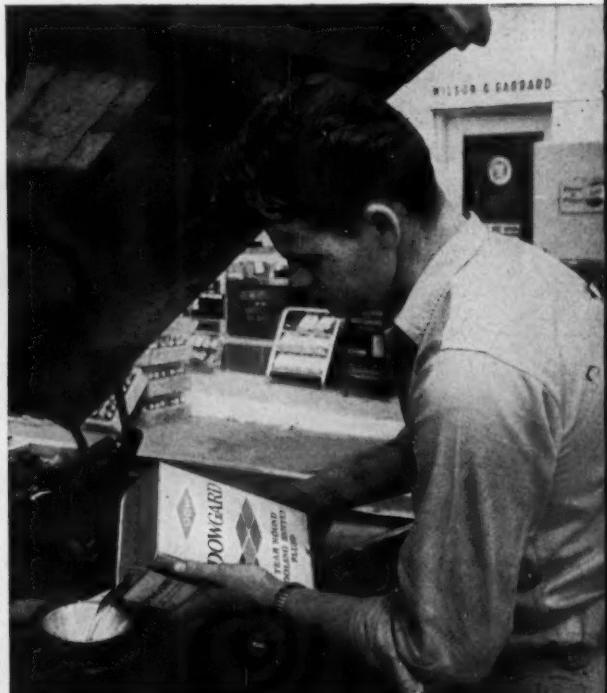
CHAMPION SPARK PLUG COMPANY • TOLEDO 1, OHIO



Virgil Gabbard (left) and Leonard Wilson, partners in Airway Manor Mobil Service, Dayton, Ohio, say that DOWGARD Coolant sales have been on the increase ever since they started handling it in September 1960.



Virgil Gabbard says customers are quick to accept DOWGARD Coolant when they learn of its year 'round effect on engine performance and superiority for preventing rust and corrosion.



Thomas Wilson installs DOWGARD Coolant in a customer's car. "We've never witnessed leakage from a cooling system in which we've installed Dowgard!" he reports.

# "DOWGARD outsells antifreeze 9 to 1 on superiority alone!"

After only 9 months, Dayton station orders DOWGARD Coolant 100 gallons at a time to meet steady demand.

"In the three and a half years we've been in business, nothing has matched the enthusiastic reception given DOWGARD® Full-Fill® Coolant!"

That's the report of Leonard Wilson (enthusiastic himself) who is a partner in the Airway Manor Mobil Service, Dayton, Ohio.

"Most of our customers had heard of DOWGARD," Mr. Wilson adds, "and all we did was tell them about its year 'round temperature protection and its superiority for preventing rust and corrosion."

Customer satisfaction is reflected in

glowing reports that come back to Airway Manor of trouble-free desert driving, rust-free, leak-free cooling systems.

Profit from selling DOWGARD Coolant now and every season, the year around. DOWGARD sells for \$2.25 per gallon, suggested retail price. Ask your jobber for the complete profit story today!



## DOWGARD has advantages antifreeze just can't offer!

1. Prevents rust in new cars, stops rust in older cars. Engine runs a bit warmer for greater engine efficiency. These features mean less engine wear and tear, gas and oil savings, longer engine life.
2. More customer satisfaction. Owners everywhere report less leakage, because DOWGARD Coolant operates at lower pressure in the system.
3. Dow guarantees for two full years to repair any damage to the engine or cooling system, caused by freezing of the coolant, in any vehicle

anywhere in the continental United States in which DOWGARD Coolant has been properly installed.

4. Guaranteed\* two years, and costs less per year than antifreeze, even with nominal installation charge!
5. More profitable because:  
Sold through service dealers.  
Higher profit margin.  
Proper installation sells more cooling system parts.  
Sell it all year 'round.

\*Unconditionally guaranteed by Dow against loss of coolant for 24 months or 24,000 miles, when properly installed by a service dealer in 1958 and newer cars and inspected every six months. Loss in first 6 months (or 6,000 miles) replacement is free; 6 to 18 months (\$6,000 to 18,000 miles)—costs customer 50% of retail price; 18 to 24 months (\$18,000 to 24,000 miles)—costs customer 75% of retail price. Reimbursement to dealer is handled by the jobber for DOWGARD Products.

**DOWGARD • THE DOW CHEMICAL COMPANY**

## FOR SALE

Well established, 40 year speedometer business. Practically no competition. Retirement the reason for selling. Good location and excellent facilities. Chance of a life time for person knowing this type of work.

Box 15  
MOTOR AGE  
5601 Chestnut St.  
Philadelphia 39, Pa.

## Have you enrolled in Motor Age's Mechanics Training Course?

## Crusade For Salesmen . . . . .

Continued from page 161

tion salesman. But, the one who comes closest to measuring up is the one who will walk off with most of the loot. He may get a little dirt under his fingernails and grease on his clothes—but he will sell a lot of merchandise in the process.

**NEW, PORTABLE REVOLVING LIGHT**  
Converts any Jeep, Truck or Car into a flashing emergency vehicle.

### MAGNETIC... STICKS LIKE GLUE!

Price—Performance, nothing matches this TRIPP-LITE  
60 Piercing 360° flashes a minute! Red, blue or amber dome. Six powerful magnets nail it to any steel surface—plugs in lighter. Super self lubricating. Operates in sub zero cold or hottest desert sun. Full 7-inches high. Corrosion proof! New SIRENS available



Contact your Jobber or Write Us.  
Div. of TRIPPE MFG. CO., Famous since 1922  
133 N. Jefferson, Dept. MA, Chicago 6



If you use tools  
You Should Be Using  
**KENNEDY**  
Tool Boxes

\* Write for Complete Catalog

**KENNEDY MANUFACTURING CO. VAN WERT 6, O.**

Pioneer in the Manufacture of Quality  
TOOL BOXES, TOOL CHESTS and ROLLER CABINETS

**NEW RUGGED Campbell-Hausfeld**  
**HIGH PRESSURE TANK UNITS**  
ideal for paint and building contractors, rental, maintenance, or other hi-volume air power requirements!

- Rugged twin cylinder air compressor (2 1/4" bore x 2" stroke) . . . delivers 5.4 CFM at 45 psi.
- Up to 100 psi continuous, 150 psi intermittent.
- 1 HP electric motor with automatic pressure switch, or 3 HP gasoline motor with constant speed unloader.
- 20 gallon tank. Stationary, or mobile with 10" rubber tired wheels.

Offers years of trouble-free high volume air delivery for fast sales, satisfied customers. Write for Bulletin HP 100 today!

"Whatever your paint spray needs . . .  
Campbell-Hausfeld has the unit for you."

The Campbell-Hausfeld Co., 207-I Railroad Ave., Harrison, Ohio

**CAMPBELL-HAUSFELD**



## NOW!

A "TWIST OF THE WRIST"  
Takes off...Puts on  
OIL FILTERS



• Here's another "helping hand" from Milbar to make auto servicing easier and more efficient.

It's the new FILTRENNCH . . . for quick removal and installation of oil filters. Fits all sizes and shapes of oil filters including those difficult to reach in the '61 cars, those with nuts on top and (with adapter) filters of small diameter.



### FORD-O-MATIC TRANSMISSION SERVICE KIT

- Reversible ratchet socket wrench with pre-set factory approved torque.
- Gauge.
- Open end wrench with pre-set torque.



### MILBAR FILTRENNCH

LOW PRICED FIXED-TIP  
RETAINING RING PLIERS  
Internal and external with straight and angled tips . . . to service all automotive applications.

Write Milbar for further information. Check with your jobber!

**MILBAR CORPORATION**

2800 EAST 116th ST. • CLEVELAND 20, OHIO

Engineered to do the job where others fail!

## Don't Farm Out Profits . . . . Continued from page 172

stations have been directing motorists requiring wheel alignment to this shop. When motorists drive in complaining of wheel shimmy, improper tire wear or other front end problems, they are directed to Rothermel's Auto Body Shop. As a result, this shop has been enjoying a heavy transient traffic volume which has also been another source of its income.

"There is a heavy concentration of service stations on Lancaster Pike where we are located who depend a great deal on the motoring traffic coming off of the Pennsylvania Turnpike interchange," points out Rothermel. "As these motorists pull in for their normal motoring needs, very often shimmy, tire wear and other problems come up for discussion. Because all these service stations are aware of the equipment that we have in our shop, they direct this traffic here."

Other than a direct mail campaign, this shop does no other advertising. The shop sends out announcements to new car regis-

tions within a twenty-five mile radius of its location. These run about 5,000 mailing pieces per year. The letter congratulates the owner on obtaining the new car and points out that if any auto body work is needed in the future, the shop is fully equipped to handle all their needs. With each letter is enclosed a small sticker which the motorist can place in his car, and this is a constant reminder to him of this shop whenever such services are needed.

"We read the newspapers carefully and send out a post card to all motorists who have had an accident or some other trouble with their automobile," adds Rothermel. "Our card simply tells the reader that we are sorry to hear that they have had bad luck with their automobile and we would appreciate an opportunity to lend a helping hand. We offer them free estimates on their repairs, free towing to our shop and also any helpful advice that they may need from our shop. We get many jobs from these mailings



here's  
the  
secret  
to the  
**first and only  
controlled output  
timing light**

**new inside and out!**



Only the completely new HT-800 Timing Light has a voltage matching switch that locks out the "wrong" voltage. *Nothing burns out!* The bright light through the optically ground lens flashes only when the battery voltage and switch position match—and it is equally as brilliant on 6 or 12 volt systems.

For twice the normal service life, the HT-800 also boasts an exclusive under-load circuit. For safety, it has a tough, high-impact plastic case that is electrically non-conductive... easy to keep clean and new-looking. It's your best buy for long-time, trouble-free service—backed by a one-year guarantee. Ask your jobber.



® Reg. trade mark

Also available in 100 lb. and 300 lb. fibre drums.

## GUNK<sup>®</sup> POWDERED CONCRETE CLEANER

GUNK Swab quickly cleans, whitens and hardens concrete floors, aprons, driveways—better than any other compound! Try it yourself and see the difference; low-cost, too. Get a handy Swab pail at your GUNK Jobber now!

GUNK CHICAGO CO., River Forest, Illinois

serving the Midwest and Southwest

RADIATOR SPECIALTY CO., Charlotte, No. Carolina

serving the East, Southeast and Far West

in Canada: RADIATOR SPECIALTY CO. OF CANADA LTD., TORONTO



**Herbrand Equipment**

HERBRAND DIVISION  
THE BINGHAM-HERBRAND CORPORATION  
FREMONT, OHIO

*don't divide your income with  
lost time*



protect your profits with a  
*Lathem*  
**PAYROLL and JOB TIME RECORDER**

Consider the ways that time on the job can be wasted . . . can run up even higher your cost of doing business. For instance . . . too much delay between jobs . . . too much time on each job . . . excessive tardiness.

To correct these abuses, you need to know where they occur. And that's where a Lathem Time Recorder can do a job for you. It gives you an accurate record of the time each job is started and completed . . . when each employee arrives and leaves work. Every loss of time stands out . . . ready for you to eliminate for a better profit picture.

Mail the coupon today for complete information, prices and sample payroll and job cards.

**LATHEM TIME RECORDER CO.**

66 Third Street, N. W., Atlanta, Georgia

Gentlemen: Without obligation, please send me complete information, including prices, about the Lathem Payroll and Job Time Recorder.

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- Victor Mfg. & Gasket Co. .... 3  
Agency—Buchen Co.

## W

- Wagner Electric Corp. .... 30-31  
Agency—Arthur R. Mogge, Inc.
- Wayne Pump Co. .... 99  
Agency—Gray & Rogers Adv.
- Wix Corp. .... 16  
Agency—Humbert & Jones, Inc.

## Service Training Schools . . . Continued from page 74

throughout the United States and Canada. They are operated under factory supervision by the Central Service Distributors and their accounts. The courses cover in detail all aspects of the automotive fuel system. Classes are divided into theory and practice sessions with extensive actual experience in the overhaul of the modern type carburetor, fuel pump and governor.

Contact local Carter supplier for information or write: Mr. Roy Dean, Director of Education, Carter Carburetor Incorporated, Div. of ACF Industries, 2840 North Spring Ave., St. Louis 7, Mo.

Holly Carburetor Co. offers service training in all phases of the automotive fuel system. These schools are currently in operation at all Central Distributor opera-

tions. They are basically field service schools with real meat for men interested in learning about the servicing of fuel system components.

The course consists of eight night sessions lasting about three hours, one night a week for eight weeks. The instructors are Holly Factory School graduates who work every day with the items being taught. These schools are held by distributors in every state.

For additional information contact your local distributor or jobber, or write directly to: Myron R. Lawyer, Service & Educational Manager, Holley Carburetor Co., 11955 E. Mile Road, Warren, Mich.

## TORQUE WRENCHES



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PA Sturtevant Co.  
ADDISON QUALITY ILLINOIS

## Reader's Clearing House . . . . .

Continued from page 113

plete system is subject to the collection of gums and sludge which of course stops the flow of crankcase gases to the manifold. The outlet adaptor, regulator valve, tubing and hoses must be cleaned or replaced in order to maintain top operating efficiency. It is recommended that the entire system be disassembled and cleaned in a suitable solvent at from 5000 to 8000 miles.

## New Volume Concept . . . . .

Continued from page 137

In addition to the immaculate look of the shop, the sign in bright red letters outside, which is lit up at night, draws many drivers off the road. Printed circulars describing all of the services are kept on a table in the waiting room; they can also be addressed and used in a direct mail campaign.

Dick Hand says, "Determined objectives are just as important as a spanking new building. Because we want individual drivers we give them service and comfort they won't forget. Because we want dealer and fleet business we have a division of labor which allows me to go out and solicit accounts. As a result we've been getting—and keeping—top volume from both."



**"200 Gates Belt  
sales a month make  
healthy bank deposits!"**

says L. D. Eaker, Eaker Motor Service,  
Shawnee Mission, Kansas

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"There's no secret about our big turnover...we simply check the belt *every* time a hood is raised. And, if an immediate replacement isn't indicated, we recommend carrying a spare...with the understanding that if the belt isn't used before the car is traded, we'll swap it for the proper type and size for the new car.

"As distributors for two different air conditioners, we also sell annually several hundred Gates Air Conditioner Belts.

"Gates station-tested sales aids make our job of finding and installing the proper belt a very simple matter."

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Your Gates Supplier will have a factory-trained Gates Representative install attractive belt and hose displays, clean up your belt and hose stocks, and supply you with a complete set of station-tested Gates Sales Aids. He'll also help you get your present stock in shape for top profits—and you won't lose a penny!

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